MATHS

25 MOCK TEST

SMART e-BOOK

BILINGUAL

Scan & Follow us on social media

For All Govt. Exams.

- Based on Latest Pattern
- Smart & Detailed Solutions
- Video Solutions

USEFUL FOR

SSC CGL, CPO, CHSL, Selection Post, GD, Railway, State Exams & Other Upcoming Exams.

Aditya Ranjan Sir

Excise Inspector

SELECTED हैं SELECTION दिलाएँगे

INDEX

DAY	CHAPTER NAME	LINK
14.	Mock Test (मॉक टेस्ट) – 14	CLICK HERE
15.	Mock Test (मॉक टेस्ट) – 15	CLICK HERE
16.	Mock Test (मॉक टेस्ट) – 16	CLICK HERE
17.	Mock Test (मॉक टेस्ट) – 17	CLICK HERE
18.	Mock Test (मॉक टेस्ट) – 18	CLICK HERE
19.	Mock Test (मॉक टेस्ट) – 19	CLICK HERE
20.	Mock Test (मॉक टेस्ट) – 20	CLICK HERE
21.	Mock Test (मॉक टेस्ट) – 21	CLICK HERE
22.	Mock Test (मॉक टेस्ट) – 22	CLICK HERE
23.	Mock Test (मॉक टेस्ट) – 23	CLICK HERE
24.	Mock Test (मॉक टेस्ट) – 24	CLICK HERE
25.	Mock Test (मॉक टेस्ट) – 25	CLICK HERE

1. Find the fourth proportional of 12^{35}, 3^{12} and 4^{12}.

12^{35}, 3^{12} ´ `ˆï 4^{12} f˜ दलोथ्अ चेतुऐ लर्ट˜ लॅ f श्कारन

SSC MTS 14/09/2023 (Shift- 03)

(a) 3^{24} (b) 12^{-23}
(c) 4^{24} (d) 12^{-11}

2. What is the simplified value of (cosecA + sinA) (cosecA – sinA) ?

(cosecA + sinA) (cosecA – sinA) f˜ रै टश्च लॅचेत ोझें (ज्ञ

(a) $\cos^2A + \cot^2A$ (b) 2cos2A
(c) 2cot2A (d) 2cosAcotA

3. The product of 277 and 323 is:

277 (ॅमक323 म्कटेस्म्)है र्कम्हक त्गा अ

SSC CGL 17/07/2023 (Shift-03)

(a) 89471 (b) 88471
(c) 91371 (d) 89391

4. In an election among three candidates A, B and C, total 8000 people voted. X% votes are invalid, and number of valid votes received by A is 25% more than that received by B, who got 20% of total valid votes. If C got 4004 valid votes, then what is the value of X?

लक्ॅ ाकृत्ध कें ˜हA, B ´`ˆï C f˜हचक्ष्ं र्स˜ दत्वे कें च्क्षी कप्ट ◌ं8000 ट हे हॅं तहचल्ो तं कं ज्ञेन X% चलॅ ´ कप्ॅ (म लॅाे˜ A f˜हB f ̆ लक्ष्ते ॅ च्क्षु ̆,ॅ ´ क्षॅ चलॅ कप्टहै क्षारॅहडक˜ कप्ॅ चलॅ कप्टहे ज्ञकॅ C f˜ह4004 चलॅ कप्टहै लॅहX f˜ चेतॅ क लॅ (ज्ञ

(a) 7 (b) 11
(c) 5 (d) 9

5. Find the single equivalent discount for successive discounts of 12%, 18% and 25% on the marked price of a car.

र्स˜ f˜ f˜हॅ क्ष लॅ च्ल्झ्र्ं ॅ˜ ̆)ज्ञ्ऋ ? %च्ऋ´ `ˆï ̆,ॅ˜ f ̆ 4 क्ष˜ ॅ क्ष र्स˜ टॅ ॅ f˜ हर चल्झ्र्ं (ज्ञ

SSC CGL TIER- II 03/03/2023

(a) 35.28% (b) 42.65%
(c) 40.25% (d) 45.88%

6. Aman alone can complete a work in 7 days by working 4 hours a day. Geeta alone can complete the same work in 2 days by working 7 hours a day. How many hours per day will they together have to work to complete the same work in 7 days?

´ च्तॅ f˜हहइक्षक्षतें 8 ˆ ्सॅहf˜ चॅ f˜ f˜हक्ष कतें ह्चक्ष्सf˜ f˜ चॅ ॅ ̆ f˜ ˜ र f˜ लॅ (ज्ञ)क्षें ´ f˜हहा रॅ ̆ f˜ चॅ f˜ ह इक्षक्षतें क्ष ˆ ्सॅहf˜ चॅ f˜ f˜हॅ कतें ह्चक्ष्ु ॅ ̆ f˜ ˜ र f˜ लॅ (ज्ञ ा र ̆ f˜ चॅ f˜ हक्ष कतें ह्चक्ष्ु ॅ ̆ f˜ तॅह f˜ हक्षऱ्सं ाक्ष्ष्ठ र्स˜ रेॅ गें क्षट f˜ इक्षक्षतें क लॅहेा ्सॅहf˜ चॅ f˜ तें (हे ज

SSC GD 07/03/2024 (Shift-03)

(a) $\frac{3}{7}$ hours (b) $\frac{4}{9}$ hours

(c) $\frac{5}{8}$ hours (d) $\frac{4}{3}$ hours

7. If a = 101, b = 102 and c = 103, then $a^2 + b^2 + c^2 - ab - bc - ca$

चस्ेa = 101, b = 102 (ॅ c = 103 ̧ क्षॅ a² + b² + c² – ab – bc – ca क म्हस्म्)कचक्ष्ु म्टिम

SSC CGL 24/07/2023 (Shift-01)

(a) 2 (b) 4
(c) 3 (d) 6

8. On comparing the following two numeric expressions, we find that ________.

काकृक्षक्ष लॅ ˜हर श्र्ज्ञे त्र्ि˜ न्ज्ञ्सा f˜ हा f ̆ लक्ष्ते ॅ f˜ तह ̧ ॅ ? (चॅ ॅ लॅ (हें (ॅ र्क ग्ग्ग्ग्ग्ग्ग्ग्ग्ग्ग्ग्

$$\left[\left(2\frac{7}{9}\right)^{2\frac{1}{2}}\right]^{\frac{3}{5}} \text{ and } \left[\left(1\frac{2}{3}\right)^{5}\right]^{\frac{3}{5}}$$

SSC MTS 14/09/2023 (Shift- 02)

(a) The first expression is larger than the second
(b) The given two expressions cannot be compared
(c) The first expression is smaller than the second
(d) Both the expressions are equal

9. Mukesh sells almonds at the cost price but uses a false weight and thus gains a 23% profit. How many grams of almonds is he giving for 3.075 kg?

चाहिं ते ` चं ि ह4 ज़ं च्यज़ं ¸ ˘ रहलें (ी टर्कि तं )टल क्सतं ि ˘ ¸ ज़े हां ि िहिध्ळ्ळ ट ़ें ˘ ड्ड ह्ल ि लें (गं ठ्व्ख वक्र्र कं )बेचारक(ं कं लिह )ब्रारं ते ` चं ै हैि(˘ (ज्ञ

SSC Phase XI 28/06/2023 (Shift-01)

(a) 2500 gm (b) 2700 gm
(c) 2400 gm (d) 2600 gm

10. A certain sum was to be divided between A and B in the ratio 8: 5. However, by mistake, it was divided in the ratio 5: 8. Thus, A gets ₹300 less than his original share. Find the sum.

स ि काव्यल` कें ि हA ˘ ˘ ी B ि हत्मरं 8 : 5 ं ि ह ˘ तुऐ लांच्हे सं से तें गे नेंटरिक त?)टलें रहे 5रं ह5 : 8 ि ह ˘ तुऐ लांच्हे सं कज़ें)ज़े नें लें A ि हं ¸ तेंहचरं कभ्रे हर ह ₹300 ि चं कराटलेंह(गंत(˘ कें ˘ ˘ लें ि क्षस्न

SSC CHSL, 17/08/2023 (Shift-4)

(a) ₹2,600 (b) ₹1,500
(c) ₹1,300 (d) ₹600

11. The average age of the boys in the class was 16 years. When 4 boys whose average age was 13 years are admitted to the class, the average age of the class was reduced by 6 months. How many boys were there initially in the class?

ि पें ˘ चंह्यट ि ह्मि ि ` ` ि ल ` ` ज़ंए%ंक्ष कडेअी अेसतं %० कडेअं ` ि ल ` ` ज़ंए कें टंहड् ट ि ह्मि हि पें ˘ चंह्ड्डक्हे कज़ें )ज़े ? लेंह ि पें ि ि ` ` ि ल ` ` ज़ंएचंहक्ष चं( ि ि ि चें ˘ ˘ )5ज्ञा ि पें ˘ चंहरके ऐ ` लें चारंक लांहट ि हिगेह्म

SSC MTS 12/09/2023 (Shift- 01)

(a) 18 (b) 25
(c) 22 (d) 20

12. Rahul earns an interest of Rs.2996 for the third year and ? 1400 for the second year on the same sum. Find the rate of interest per annum if it is lent at compound interest (compounding annually).

˘ ` (ह्ं ि हक रि 6 तैं कें ¸ ˘ ˘ लहैं हकडेंअ ि हक्तरं ध्ध्ध्क्ष रु ज़ोंहं ˘ ी ी हकडेंअ ि हक्तरं ˘ %8ववं रु ज़ोंह ि ˘ ध्ह्मे स कटलें (गंज़क ज़(6 तैं कें द4 क्क्रां ˘ ध्ह्मे सं ब के केडी ़¸ ˘ रहरज़ेह्मलाल ृ ˘ ˘ ।6 ˘ ि)5ज्ञ(लेंह ध्ह्मे सं ि ि वे केडी ˘ ˘ ˘ लें ि क्षस्न

SSC GD 07/03/2024 (Shift-01)

(a) 113% (b) 114%
(c) 110% (d) 112%

13. In a circle, AB is a chord which produced to P such that PT is the tangent to the circle from point P. If PA = 144 cm and PB = 36cm then find the measure of PT.

स ि कवृं चौ AB स ि सक्कें (ी सेंहP ल ि 5रं इ ि से लेंं(ा कं PT कछें एP रहक्कें ि ि ि ़ु रेखे हैं ˘ (गंज़क PA = 144 रह्रें ˘ ˘ ी PB = 36 रह्रें (ी लेंहPT ि ि चेु ˘ ˘ लें ि क्षस्न

(a) 72 cm (b) 48 cm
(c) 56 cm (d) 84 cm

14. Compound interest on a sum at 6% per annum rate of interest in 2 years, when interest is compounded annually, is equal to the simple interest on 3% more sum at R% per annum rate of interest in 4 years. Find the value of R.

कि र ि 6 तैं कें ¸ ˘ क्ष˘ इक्लं कडेंअ ि ˘ ˘ रहहं कडेंहचक्ष द4 क्क्रं ध्ह्मे सं बसतं ध्ह्मे सं वे केडी ़¸ ˘ रहरज़ेह्मलाल (हं (ा ? लेंहऊ कडेंहचेंR% इक्लं कडेंअ ि ध्ह्मे सं ˘ ˘ ¸ क ˘ क ि 6 तैं कें ि हरे 6 ˘ ˘ ध्ह्मे सं ि हते ˘ ते ˘ (गंR ि ˘ चेतं ˘ लें ि क्षस्न

(a) 3 (b) 4
(c) 5 (d) 2

15. The internal and external diameters of a hollow hemispherical bowl are 6 cm and 10 cm, respectively. If it is melted and recast into a solid cylinder of diameter 14 cm, what is the height of the cylinder in cm?

स ि प्रे ह्मटंह 6ओहे ि ˘ ि लैहहं ि ˘ ˘ सौक ि ˘ ˘ ी ते (ि न्ज़े रं 4 चेड3 क्ष रह्रें ˘ ˘ ी %वं रह्रें (गंज़कं 5रं हकु ोट ि %8 रह्रें न्ज़े र वे टंहस ि पे हं रहते ि ह ¸ ˘ चंह्मठे ट से लें (ी लेंहतहते ि ि ढ्वे 5अ रह्रें चंह्मि ज़ें (ह्ष्ज

SSC Phase XI 27/06/2023 (Shift-01)

(a) 1.1 (b) 1.22
(c) 1.33 (d) 1

16. If an electricity bill is paid before the due date, one gets a reduction of 13% on the amount of the bill. By paying the bill before the due date, Ravi got a reduction of ₹ 260.39. The amount of his electricity bill (in ₹) was:

ज़कं स ि कसटि ि हकट ि ˘ . पृलेतं कज़लें लै श्र ˘ रह ¸ (टंहक ज़ें से लें (ी लेंहकट ि ि ` कें ¸ ˘ 13% ि ि ृ ए कटलें (गंकज़लें लै श्र ˘ रंहु (टंहकट ि ˘ . पृलेतं ि तह ¸ ˘ ˘ कं ि हर260.39 ि ि ृ वं कटअं।र ि हकसटि ि ह कट ि ि ` कें 0रं चंह्मा ि ज़ें ग्ञ्ज

SSC CHSL, 17/08/2023 (Shift-4)

(a) 2,003 (b) 2,580
(c) 2,230 (d) 2,064

17. A sells a bicycle to B at a profit of 30% and B sells it to C at a profit of 10%. If C pays Rs.1287 for the bicycle, then what was the cost price of bicycle for A?

A, B ि हक ि हटे ़ ्र ि रे 5क ट हलें (ा ा B 5रह%क ि हटे ़ C ि हलें (ाजक C? ।र रे 5क ट ि हक ं %म्क रु ज़ह ि . फ़्लेत ि लें (? लेह A ि हक ं रे 5क ट ि 4 ज़ं च्य़ ं कि लों ि गे ज

SSC GD 07/03/2024 (Shift-04)

(a) Rs.850 (b) Rs.950
(c) Rs.800 (d) Rs.900

18. In ΔCAB, ∠CAB = 90° and AD⊥ BC. If AC = 24 cm, AB = 10 cm, then find the value of AD (in cm).

ΔCAB चंह∠CAB = 90° ा AD⊥ BC (ाजक AC = 24 cm, AB = 10 cm लेंहAD ि चेते cm च्ह ल ि क्ष्य़न

SSC CHSL, 17/08/2023 (Shift-1)

(a) 9.23 cm (b) 8.23 cm
(c) 7.14 cm (d) 10.23 cm

19. Find the value of tan4384° + cot6814° = ?

tan4384° + cot6814° मसम)व मिक त्फ़ अ

SSC CGL 26/07/2023 (Shift-03)

(a) –1 (b) 2
(c) 0 (d) 1

20. A motorboat travelling at some speed can cover 28 km upstream and 40 km downstream in 11 hours. At the same speed it can travel 30 km downstream and 16 km upstream in 7 hours, then the speed of the stream is:

र ि चेहै ते के के र दे ट रंहज़ेजें ि लें(ए 6 ि हड़का ह ऽ क चें ा 6 ि हं त ए ह 8वं क चह ि ऽ 0ऽ %% ेहचंहल्लं ि लें (ा ।र दे ट रंह(6 ि हं त ए ह ठवं क चें ा 6 ि हड़का ह %ऽ क चें ि ऽ ज़े जें क्र ेहचंहल्लं ि लें (ा 6 ि ऽ दे ट ी ज़े (ज़

SSC MTS 13/09/2023 (Shift- 03)

(a) 2 km/h (b) 1 km/h
(c) 3 km/h (d) 4 km/h

21. Which is the greatest among $(\sqrt{19}-\sqrt{17})$, $(\sqrt{13}-\sqrt{11})$, $(\sqrt{7}-\sqrt{5})$ and $(\sqrt{5}-\sqrt{3})$?

$(\sqrt{19}-\sqrt{17})$, $(\sqrt{13}-\sqrt{11})$, $(\sqrt{7}-\sqrt{5})$ ा $(\sqrt{5}-\sqrt{3})$ चंहरेरेंहट ः ि ा (ज़

(a) $\sqrt{19}-\sqrt{17}$ (b) $\sqrt{13}-\sqrt{11}$
(c) $\sqrt{7}-\sqrt{5}$ (d) $\sqrt{5}-\sqrt{3}$

22. A sum invested at the same rate of compound interest (compounding annually) becomes Rs.10800 in 4 years and Rs.32400 in 8 years. What is the sum?

द4 क ंं क्षे ि ऽ रचेत ब के कें, रंहरज़ेहल्ल ाकें ि ऽ)5अ ि 6ते कें 8 कें ह%क्वं रु ज़ंह ा ं कें ह%ऽ8वं रु ं हसे लें (ाक(6ते कें कि ल्तऽ(ज़

SSC GD 05/03/2024 (Shift-02)

(a) Rs.3800 (b) Rs.3600
(c) Rs.4100 (d) Rs.4200

23. A person incurs a loss of 5% by selling a watch for Rs.1140. At what price should the watch be sold to earn a 5% profit?

र ि) ऽ ि हख%%8वं रु ज़ंहचंहत ह तंहु र ि न्ज़कें ि ह , ि ऽ (कें (हें (ा , ट . काें ि तंह ि ह क ं) ऽ ि हकि ि क्ष्ले , ं त हे से ते दे कृज

(a) Rs. 1200 (b) Rs.1230
(c) Rs. 1260 (d) Rs. 1290

24. The annual incomes of Anand and Bharath are in the ratio 3 : 5 and their annual expenses are in the ratio 1 : 3. If each of them saves Rs.10,000 at the end of the year, then the annual income of Bharath is:

तमं ा . लें ि ऽ के कें ज़ं ठ ३ ; ि हं तुऐ लें च्ह (ा ा ।त ि के कें न्ज़ं % ३ ठ ि हं तुऐ लें चंह(ाज़क ।तचंहरहड़ज़ह न्ज़कें कें अ ि हं ता चंह%वं रु ज़ंह ि ऽ ंदलें ि लें (? लेंह लें ि ऽ के कें ज़ं ी ज़ें (ज़

SSC Phase XI 28/06/2023 (Shift-01)

(a) Rs. 25,000 (b) Rs. 12,000
(c) Rs. 15,000 (d) Rs. 30,000

25. Two circles touch each other internally. Their radii are 3 cm and 4 cm. What is the length of the biggest chord of the circle with radii 4 cm which is outside the inner circle?

हक्कें र ि ए ह ि हं सौक ि , रंहभु कें अ लें(ा 5त ि ऽ के कें ज़े स्ंज3 cm ा 4 cm, (ा4 cm कें ज़े के टह क्कें ि ऽ र र रंहट सें सक्कें ि ऽ टसे 5अे ज़ें (ासे हं सौक ि क्कें ि हते ((ज़

SSC CHSL, 17/08/2023 (Shift-3)

(a) $5\sqrt{3}$ cm (b) $6\sqrt{3}$ cm
(c) $4\sqrt{3}$ cm (d) $2\sqrt{3}$ cm

ANSWER KEY

1.(b)	2.(a)	3.(a)	4.(d)	5.(d)	6.(d)	7.(c)	8.(d)	9.(a)	10.(c)
11.(d)	12.(b)	13.(a)	14.(a)	15.(c)	16.(a)	17.(d)	18.(a)	19.(c)	20.(c)
21.(d)	22.(b)	23.(c)	24.(a)	25.(c)					

SOLUTIONS

1. (b) Ist 2nd 3rd 4th

a : b : c : d

$\frac{a}{b} = \frac{c}{d}$ then $\frac{3^{12} \times 4^{12}}{12^{35}} = \frac{12^{12}}{12^{35}} = 12^{-23}$

2. (a) (cosecA + sinA) (cosesA - sinA)
(A + B) (A-B) = A^2-B^2
then, $cosec^2A - sin^2A$
$(1 + cot^2A) - (1 - cos^2A) \Rightarrow 1 + cot^2A - 1 + cos^2A$
$cot^2A + cos^2A$

3. (a) $(300)^2 - (23)^2$
$a^2 - b^2 \Rightarrow 90000 - 529 = 89471$

Alternate Method:-

Use digital sum

$\lfloor 277 \rfloor \times \lfloor 323 \rfloor = \lfloor 56 \rfloor$
7 8 2

The answer of this question will have 2 as its digital sum

(a) 89471 → 2

4. (d) Let, valid votes = 100
So,

A	:	B	:	C
25	:	20	:	55
5	:	4	:	11

11 unit = 4004
1 unit = 364
20 unit = 364 × 20 = 7280 (valid votes)
Invalid votes = 8000 – 7280 = 720

Invalid votes (in%) = $\frac{720}{8000} \times 100 = 9\%$

5. (d) 12% = $\frac{3}{25}$, 18% = $\frac{9}{50}$, 25% = $\frac{1}{4}$

MP	SP
25	22
50	41
4	3
5000	2706

Overall discount = 2294

Overall discount (in %) = $\frac{2294}{5000} \times 100\% = 45.88\%$

Alternate Method:-

Successive discount

$12 + 18 - \frac{12 \times 18}{100} = 27.84$

again $27.84 + 25 - \frac{27.84 \times 25}{100} = 45.88\%$

6. (d) Total work = A × 4 × 7 = G × 7 × 2

$\frac{A}{G} = \frac{1}{2}$

$(A + G) \times 7 \times x = A \times 4 \times 7$

$3 \times 7 \times x = 1 \times 4 \times 7 \Rightarrow x = \frac{4}{3}$ hours

7. (c) Given,
a = 101, b = 102, c = 103,

d=1 d=1
101 102 103

$\therefore a^2 + b^2 + c^2 - ab - bc - ca = 3 \times d^2 = 3 \times 1 = 3$

8. (d) $\left[\left(2\frac{7}{9}\right)^{2\frac{1}{2}}\right]^{\frac{3}{5}}$ and $\left[\left(1\frac{2}{3}\right)^{5}\right]^{\frac{3}{5}}$

$\frac{25^{\frac{5}{2}\times\frac{3}{5}}}{9}$ $\left(\frac{5}{3}\right)^{5\times\frac{3}{5}}$

$\left(\frac{25}{9}\right)^{\frac{3}{2}}$ $\left(\frac{5}{3}\right)^{3}$

$\left(\frac{5}{3}\right)^{2\times\frac{3}{2}}$

$\left(\frac{5}{3}\right)^{3}$ So,

We can say that both the expressions are equal.

9. (a) Mukesh get profit of 23%

CP		SP
100	:	123

123 unit → 3075 kg
1 unit → 0.025
100 unit → 2.5 kg or 2500 gm

10. (c) A B
8 : 5 ⇒ 8 + 5 = 13
5 : 8 ⇒ 8 + 5 = 13 Some are equal
then, 8 - 5 = 3 unit = 300
= 1 unit = 100
13 unit = 100 × 13 = Rs.1300

11. (d) Let, initial number of boys in class = x

$\frac{(x \times 16) + (4 \times 13)}{(x + 4)} = 15.5$

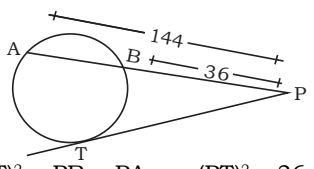
$16x + 52 = 15.5x + 62$
$0.5x = 10$
$x = 20$

12. (b) 2nd year C.I 3rd year C.I

1400 Diff 2996
1596

So, Rate% = $\frac{1596}{1400} \times 100 = 114\%$

13. (a)



$(PT)^2 = PB \times PA \Rightarrow (PT)^2 = 36 \times 144$
$PT = \sqrt{36 \times 144} \Rightarrow PT = 6 \times 12 = 72$ cm

14. (a) C.I of 2 years at 6% per annum = 12.36%

C.I = S.I

$$100 \times \frac{12.36}{100} = \frac{103 \times R \times 4}{100}$$

$$309 = 103 \times R$$

$$R = 3\%$$

15. (c) Volume of hollow hemispherical bowl = Volume of cylinder

$$\frac{2}{3}\pi (R^3 - r^3) = \pi r^2 h \Rightarrow \frac{2}{3}\left((5)^3 - (3)^3\right) = 7 \times 7 \times h$$

$$\frac{2}{3} \times 98 = 7 \times 7 \times h \Rightarrow h = 1.33 \text{ cm}$$

16. (a) Discount = 13%

So, 13% = 260.39

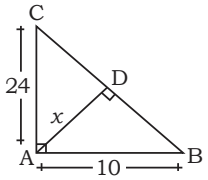
$$100\% = \frac{260.39}{13} \times 100 = \text{Rs.}2003$$

17. (d) Let, CP of A = x

then, $x \times \frac{130}{100} \times \frac{110}{100} = 1287$

x = Rs.900

18. (a)



H = 5, 12, 13 (By Triplet)

10, 24, 26

So, H = 26

$$x = \frac{P \times B}{H} = \frac{24 \times 10}{26} = 9.23$$

19. (c) $\tan(4384°) = \tan(12 \times 360° + 64°) = \tan 64°$

& $\cot(6814°)$

$= \cot(19 \times 360° - 26°)$

$= \cot(-26°) = -\cot 26°$

$\therefore \tan 4384 + \cot 6814°$

$= \tan 64° - \cot 26° = \tan 64° - \cot(90° - 64°)$

$= \tan 64° - \tan 64° = 0$

20. (c) $U = \frac{1}{x-y}$ $V = \frac{1}{x+y}$

$3 \times (28U + 40V = 11)$

$4 \times (16U + 30V = 7)$

$$84U + 120V = 33$$

$$\underline{64U + 120V = 28}$$

$$20U - 5$$

$$U = \frac{1}{4}$$

then, $16U + 30V = 7$

$$16 \times \frac{1}{4} + 30V = 7$$

$$30V = 3 \Rightarrow V = \frac{1}{10}$$

Upstream $(x - y) = 4$

Downstream $(x + y) = 10$

So, speed of stream = $\frac{10-4}{2} = \frac{6}{2} = 3$ km/h

Alternate Method:

$\frac{28}{UP} + \frac{40}{D} = 11$ .....(i)

$\frac{16}{UP} + \frac{30}{D} = 7$ .....(ii)

Let, Upstream = 4 km/h

Downstream = 10 km/h

Speed of current = $\frac{10-4}{2} = \frac{6}{2} = 3$ km/h

21. (d) $\left(\sqrt{19} - \sqrt{17}\right), \left(\sqrt{13} - \sqrt{11}\right), \left(\sqrt{7} - \sqrt{5}\right)$ and $\left(\sqrt{5} - \sqrt{3}\right)$

When given this type of series, and difference are same between numbers.

Largest no = $\sqrt{5} - \sqrt{3}$

Smallest no = $\sqrt{19} - \sqrt{17}$

22. (b) Principal $\xrightarrow{4 \text{ year}}$ 10800 $\xrightarrow{4 \text{ year}}$ 32400 (8 year)

1 : 3

Here also principal three times more in 4 year

So, Principal $\xrightarrow{4 \text{year}}$ 10800

1 : 3

then, 3 unit = 10800

1 unit = $\frac{10800}{3}$ = Rs.3600

23. (c) C.P of watch = 100%

95% = 1140

$$105\% = \frac{1140}{95} \times 105 = \text{Rs.}1260$$

24. (a)

	A	:	B
Income	3	:	5
Exp	1	:	3
Saving	10000		10000

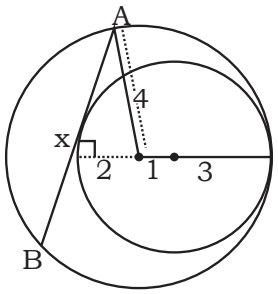
$(3 \times 3 - 1 \times 5) = 3 \times 10000 - 1 \times 10000$

4 unit = 20000

1 unit = 5000

Annual income of Bharat = 5000 × 5 = Rs.25000

25. (c)



$AX = \sqrt{(4)^2 - (2)^2} = \sqrt{16-4} = \sqrt{12} = 2\sqrt{3}$

So, $AB = 2\sqrt{3} \times 2 = 4\sqrt{3}$ cm

1. If $(x - 2)$ is a factor of $(2x^2 + 12kx - 25k)$, then what is the value of k?
 ;fn $(x - 2), (2x^2 + 12kx - 25k)$ dk ,d xq.kd gS] rks k dk eku D;k gS\
 MTS 01/09/2023 (Shift- 02)
 (a) 8 (b) 2
 (c) 6 (d) 4

2. Which of the following numbers is a divisor of $(49^{15} - 1)$?
 fuEufyf[kr esa ls dkSu lh la[;k $(49^{15} - 1)$ dk Hkktd gS\
 (a) 46 (b) 14
 (c) 8 (d) 50

3. A mixture contains acid and water in the ratio of 4 : 7. If 10 litres of water is added to it, then the ratio of acid and water becomes 8 : 19. What is the quantity of acid in the mixture?
 ,d feJ.k esa vEy vkSj ikuh dk vuqikr 4 : 7 gSA ;fn blesa 10 yhVj ikuh feyk;k tkrk gS] rks vEy vkSj ikuh dk vuqikr 8 : 19 gks tkrk gSA feJ.k esa vEy dh ek=kk fdruh gS\
 SSC GD 01/03/2024 (Shift-01)
 (a) 16 liter (b) 4 liter
 (c) 12 liter (d) 8 liter

4. Three numbers are in the ratio of 5 : 7 : 9 and their LCM is 34,650. Their HCF is:
 rhu la[;k,¡ 5 : 7 : 9 ds vuqikr esa gSa vkSj mudk y?kqÙke lekiorZd 34,650 gSA mudk egÙke lekiorZd Kkr djsaA
 SSC CPO 05/10/2023 (Shift-01)
 (a) 110 (b) 315
 (c) 99 (d) 55

5. Which smallest positive number should be subtracted from each of 9 and 13 so that 18 is the third proportion to them?
 9 vkSj 13 esa ls izR;sd esa ls og dkSu&lh lcls NksVh /ku la[;k ?kVk;h tk, fd 18 mudk r`rh;kuqikrh gks\
 SSC CGL 03/12/2022 (Shift-03)
 (a) 2 (b) 4
 (c) 3 (d) 1

6. By selling a TV set for Rs.16,800, a salesman gains a profit of 20%. If the production cost is increased by 20%, find the new selling price of the set so as to gain 20%.
 ,d TV lsV dks Rs.16,800 esa cspdj ,d fodszrk 20% dk ykHk izkIr djrk gSA ;fn mRiknu ykxr esa 20% dh o`f) gks tkrh gS] rks 20% dk ykHk izkIr djus ds fy, lsV dk u;k fodz; ewY; Kkr djsaA
 MTS 04/09/2023 (Shift- 01)
 (a) Rs.18,160 (b) Rs.18,480
 (c) Rs.20,160 (d) Rs.20,480

7. ΔPQR is inscribed in a circle with center O. PO is produced to meet QR at U and the circle at S, and $PT \perp QR$, where T lies between Q and U. If $\angle Q = 70°$ and $\angle R = 55°$. Then what is the measure (in degrees) of $\angle TPS$?
 ΔPQR dsUnz O okys ,d o`Ùk ds vUrxZr gSA PO dks c<+k;k tkrk gS tks QR ls U ij vkSj o`Ùk ls S ij feyrk gS] vkSj $PT \perp QR$ gS] tgk¡ T, Q vkSj U ds chp fLFkr gSA ;fn $\angle Q = 70°$ vkSj $\angle R = 55°$ gS] rks $\angle TPS$ dk eki (fMxzh esa) D;k gS\
 SSC CHSL 13/04/2021 (Shift-01)
 (a) 25 (b) 20
 (c) 15 (d) 30

8. The average weight of the first 13 persons among 14 persons is 78 kg. The weight of the 14th person is 39 kg more than the average weight of all the 14 persons. Find the weight of the 14th person.
 14 O;fDr;ksa esa ls igys 13 O;fDr;ksa dk vkSlr Hkkj 78 kg gSA 14osa O;fDr dk Hkkj lHkh 14 O;fDr;ksa ds vkSlr Hkkj ls 39 kg vf/kd gSA 14osa O;fDr dk Hkkj Kkr djsaA
 SSC CGL TIER II 26/10/2023
 (a) 110 kg (b) 118 kg
 (c) 98 kg (d) 120 kg

9. In an equilateral ΔABC, O is the circumcenter and D is the mid-point of BC. If perimeter of triangle is 72 cm, then find the length of OD.
 ,d leckgq ΔABC esa] O ifjdsUnz gS vkSj D, BC dk e/;&fcanq gSA ;fn f=Hkqt dk ifjeki 72 cm gS] rks OD dh yackbZ Kkr djsaA
 (a) $6\sqrt{3}$ cm
 (b) $4\sqrt{3}$ cm
 (c) $\frac{6}{\sqrt{3}}$ cm
 (d) $\frac{4}{\sqrt{3}}$ cm

10. A sum of Rs.15,000 was lent for 3 years at the rate of 4%, 5%, 6% per annum, respectively, at compound interest for the first year, second year and third year compounded annually. Find the compound interest for the compound interest for 3 years.

SSC MTS 12/09/2023 (Shift- 03)

(a) Rs.2,382.60 (b) Rs.2,380.80
(c) Rs.2,362.80 (d) Rs.2,380.60

11. If price of papaya is increased by 40%, then by what percentage consumption of papaya should be decreased so that the expenditure incurred on papaya gets decreased by 10%?

SSC GD 29/02/2024 (Shift-04)

(a) 32.7% (b) 38.7%
(c) 36.7% (d) 35.7%

12. If $\tan\frac{A}{2} = x$, then find x.

SSC CGL 18/07/2023 (Shift-01)

(a) $\frac{\sqrt{1+\cos A}}{\sqrt{1-\cos A}}$ (b) $\frac{\sqrt{1-\sin A}}{\sqrt{1+\cos A}}$
(c) $\frac{\sqrt{1-\cos A}}{\sqrt{1+\cos A}}$ (d) $\frac{\sqrt{\cos A-1}}{\sqrt{1+\cos A}}$

13. Julie and Soma start from the same point and walk in opposite directions. Julie walks 4 km/h faster than Soma. After 4 hours they are 40 km apart. How fast did each walk?

SSC CPO 05/10/2023 (Shift-2)

(a) Julie 7 km/h, Soma 3 km/h
(b) Julie 8 km/h, Soma 4 km/h
(c) Julie 9 km/h, Soma 5 km/h
(d) Julie 10 km/h, Soma 6 km/h

14. A triangle PQR has three sides equal in measurement and if PM is perpendicular on QR, then which of the following equality holds?

एक त्रिभुज PQR की तीन भुजाएँ माप में बराबर हैं और यदि PM, QR पर लंबवत है, तो निम्नलिखित में से कौन सी समानता रखती है?

SSC CHSL 04/08/2023 (Shift-02)

(a) $3PM^2 = 2PQ^2$ (b) $3PQ^2 = 4PM^2$
(c) $3PM^2 = 4PQ^2$ (d) $3PQ^2 = 2PM^2$

15. A conical tent is set to accommodate 15 persons. Each person must have 5 square metres of space on the ground and 30 cubic metres of air to breathe. What is the height of the cone?

SSC MTS 12/09/2023 (Shift- 02)

(a) 18 m (b) 22 m
(c) 13 m (d) 15 m

16. If an equilateral triangle has side 12 cm, then what is the difference (in cm) between the circumradius and inradius?

SSC CGL 02/12/2022 (Shift-01)

(a) $2\sqrt{2}$ (b) $3\sqrt{2}$
(c) $2\sqrt{3}$ (d) $3\sqrt{3}$

17. If $\sin(A + B) = \cos(A + B)$, what is the value of tanA?

SSC CGL 02/12/2022 (Shift-01)

(a) $\frac{1-\tan B}{1+\tan B}$ (b) $\frac{1+\tan B}{1-\tan B}$
(c) $\frac{1+\sec B}{1-\sec B}$ (d) $\frac{1-\operatorname{cosec} B}{1+\operatorname{cosec} B}$

18. A sum of money earns a simple interest at 7.25% per annum for the first eight years, at 8.5% for the next six years, and at 6.5% for the final four years. If the total interest earned during these eighteen years was ₹35,100, what was the original sum invested (in ₹)?

SSC CGL 20/07/2023 (Shift-02)

(a) 25,800 (b) 25,500
(c) 26,400 (d) 26,000

19. By mistake, instead of dividing Rs.702 among Ram, Ramesh, and Naresh in the ratio $\frac{1}{3}:\frac{1}{4}:\frac{1}{6}$, it was divided in the ratio of 3 : 4 : 6. Who gained the most and by how much?

SSC CGL 02/12/2022 (Shift-01)

(a) Ram Rs.158 (b) Ramesh Rs.158
(c) Naresh Rs.168 (d) Ram Rs.168

20. How many numbers between 500 and 900, both inclusive, are exactly divisible by all the numbers, 12, 15, 20 and 30?

2šš जो ï 8šš` `ोंह क्कक्कर` ।र्रह(ि म्लै `हद्द्वा र्हन`ै ि
करलॉर्हन` ए`र्म(ीर्वा `हव.अव2अ.ड जो ï 1ड म्लै पेन
` ए` जोर्हा `हक्क्षे ड्य क्रुपे ३ˇ (ृ्म

SSC MTS 12/10/2021 (Shift- 02)

(a) 7 (b) 6
(c) 5 (d) 4

21. The cost of manufacture of a tape recorder is Rs.3500. The manufacturer fixes the marked price 30% above the cost price and allows a discount in such as to get a profit of 5% Find the discount percentage.

नै ˇ ,क्ुं क` मह्र` न क्कवेड्ड ट)र्र 12šš त्क्ुंह(ि क्कवेड्ड
,क्ुंक` मह्र` `हɵ`ˇ चछं` `ह1šश जक` ˇ क्क्ुं जकैर` ।रे
(ां जो ï 2श` `ˇ ट पें पेत्र्रं` ।र्हे `हक्कर् 7३ हें (ि 7३
एक्` र्ंछेर` नकैस्उ

SSC GD 29/02/2024 (Shift-04)

(a) 21.15% (b) 15.14%
(c) 17.5% (d) 19.23%

22. A, B and C invested capitals in the ratio 3 : 4 : 8. At the end of the business period, they received profits in the ratio 2 : 3 : 5. What is the ratio of their time invested?

A, B जो ï C र्हें यॉक यन` `हजल्क्वि चक्खित्वन् `हे` न्धथे क्रे।
जू क` `हजर्सं चक्क5(ह यॉ ï यॉ2` `हजल्क्वि चछ्हटे पें क्क्र (फि उ
5लै `हक्क्रू क्केर` च` `ˇ जल्क्विर तं` (ृ

SSC CGL TIER- II 06/03/2023

(a) 16 : 18 : 15
(b) 13 : 18 : 15
(c) 16 : 21 : 18
(d) 15 : 16 : 13

23. If (a + b + c) = 19, and $(a^2 + b^2 + c^2) = 155$, find the value of $(a - b)^2 + (b-c)^2 + (c - a)^2$.

` कॅ (a + b + c) = 19 जो ï $(a^2 + b^2 + c^2) = 155$ (ि्रे ह
$(a - b)^2 + (b - c)^2 + (c - a)^2$` `ˇ चेलॅ छेर` ।ह्र

SSC CGL 18/07/2023 (Shift-02)

(a) 104 (b) 108
(c) 100 (d) 98

24. Raju and Akber take 4 hours and 6 hours to type 32 pages and 48 pages, respectively, on a computer. They are given an assignment of typing 256 pages. If they work together, typing on two different computers, starting at the same time, how much time will they take to complete the assignment (in hours),

ो ï 3 जो ï जै द ।` `हसे ` म्र 3 ï क्ुं ॅ ठ चृ य1.ˇ क्ुंह जो ï क
क्ुंह ˇ ,म्कृ ।र्हेचक्क %र्हजो ï क्क %र्हट)र्रह(ि 5(ह.2क्क क्ुंह
`,म्कृ ।र्हे `ˇ नै ˇ ज` म्लक्ष्म क` ो ï र` (ि क` ृ`ह`हेइ
जट)र्सजट)` म्र 3 ो हक्कु `ˇ 6 क्क्टे ।` `च ।र्रह(ो जो ï नै
(नॅ च क्ुं ,म्कृ ।र्लें ृ ि ।र्रह(मे हह(हर्ज `म्लक्ष्म `हक्के
` ।र्हेचक्क %र्म्रहक्क करलें ` च ˇ ट)र्हृ

SSC CHSL, 17/08/2023 (Shift-02)

(a) 16 (b) 14
(c) 18 (d) 12

25. Which of the following is the largest fraction?

क्कल्ले चर्हे `ह ड `हद्दग्रह क्केल्लै `र्लें न(ृ

$\frac{8}{9}, \frac{6}{11}, \frac{4}{9}, \frac{13}{15}$

(a) $\frac{8}{9}$ (b) $\frac{6}{11}$
(c) $\frac{4}{9}$ (d) $\frac{13}{15}$

ANSWER KEY

1.(a)	2.(c)	3.(a)	4.(a)	5.(d)	6.(c)	7.(c)	8.(d)	9.(b)	10.(c)
11.(d)	12.(c)	13.(a)	14.(b)	15.(a)	16.(c)	17.(a)	18.(d)	19.(c)	20.(a)
21.(d)	22.(a)	23.(a)	24.(a)	25.(a)					

SOLUTIONS

1. (a) $(x-2)$, $(2x^2 + 12Kx - 25K)$
$x - 2 = 0$ then, $2x^2 + 12Kx - 25K = 0$
$x = 2 \rightarrow \quad 2 \times 4 + 12 \times K \times 2 - 25 \times K = 0$
$8 + 24K - 25K = 0 \Rightarrow 8 - K = 0 \Rightarrow K = 8$

2. (c) $(49^{15} - 1)$
Concept:- $a^{odd} + b^{odd}$ when given odd power its divided by $(a - b)$
$49^{15} - 1^{15}$
$= 49 - 1 = 48$ and 48 factor is 8

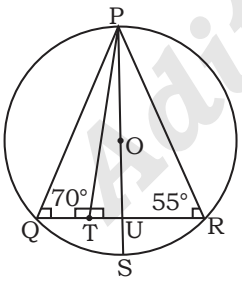
3. (a) Acid : water
$(4 : 7) \times 2$ for make acid same.
$\downarrow$ + 10 ltr.
$8 : 19$
5 unit = 10
1 unit = 2
8 unit = $2 \times 8 = 16$ litre

4. (a) L.C.M = $5 \times 7 \times 9 = 315$ unit
H.C.F = 1 unit
So, $\frac{34650}{315} \times 1 = 110$

5. (d) Let, no. be x
$\frac{9-x}{13-x} = \frac{13-x}{18}$
From option (d)
$\frac{9-1}{13} = \frac{13-1}{18} \Rightarrow \frac{8}{12} = \frac{12}{18} = 1 = 1$

6. (c) C.P = 100% S.P = 120%
120% = 16800
$\underbrace{\left(\frac{16800}{120\%} \times 100\%\right)}_{\text{Production cost}} \times \underbrace{\frac{120}{100}}_{\text{Increase by 20\%}} \times \underbrace{\frac{120}{100}}_{\text{New S.P with 20\% gain}} = \text{Rs.}20160$

7. (c)



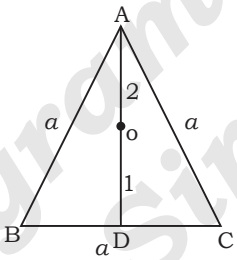
By chord PR
Circumfrence Angle $\times$ 2 = centre angle
$\angle PQR \times 2 = \angle POR$
$70 \times 2 = \angle POR$
$140 = \angle POR$
then, By radius $\angle OPR = \angle ORP$
$20° = 20°$
In Δ PQT $\angle QPT = 180 - (90 + 70)$
$= 180 - 160 = 20°$
so, $\angle QPR = 180 - (70 + 55) = 180 - 125 = 55$
then, $\angle TPU = 55 - (20 + 20) = 55 - 40 = 15°$

8. (d) Let, Avg of 14 persons = x

Data	13	14^{th}
Avg	78	$x + 39$

$-\frac{39}{13} = -3 \Big|^{x}_{\text{3 Decrease at each person}} + 39$
then, $x = 78 + 3 = 81$
Weight of 14^{th} person = 81 + 39 = 120 kg

9. (b)



AD (Height of equilateral triangle)
$= \frac{\sqrt{3}}{2}a = \frac{\sqrt{3}}{2} \times 24 = 12\sqrt{3}$
So, AO : OD
2 : 1
3 unit = $12\sqrt{3} \Rightarrow$ 1 unit = $\frac{12\sqrt{3}}{3} = 4\sqrt{3}$

10. (c)
4% 6% 5%
by successive 10.24% 5%
by successive $\rightarrow 10.24 + 5 + \frac{10.24 \times 5}{100}$
$= 15.24 + 0.5120 = 15.7520\%$
then, $\frac{15000}{100} \times 15.7520 = \text{Rs.}2362.80$

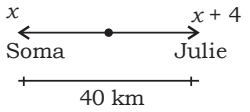
11. (d) 100 → Price 40% increase = 140
Exp = 10% decrease = 90
Decrease % of consumption = $\frac{50}{140} \times 100 = 32.7\%$

12. (c) Let, A = 60°
$\tan \frac{60}{2} \times x \Rightarrow \tan 30° = x$
$\frac{1}{\sqrt{3}} = x$

Value put in option c.

$\frac{\sqrt{1-\cos A}}{\sqrt{1+\cos A}} \Rightarrow \frac{\sqrt{1-\frac{1}{2}}}{\sqrt{1+\frac{1}{2}}} = \frac{\sqrt{\frac{1}{2}}}{\sqrt{\frac{3}{2}}} = \frac{\sqrt{\frac{1}{2}}}{\sqrt{\frac{3}{2}}} = \frac{1}{\sqrt{3}}$ satisfy.

13. (a) Let speed of soma = x



$t = \frac{D}{S} \Rightarrow 4 = \frac{40}{2x+4}$

$2x + 4 = 10$

$2x = 6$

$x + 3$

So, Speed of Soma = 3 km/h

Speed of Julie = 3 + 4 = 7 km/h

Alternate Method:-

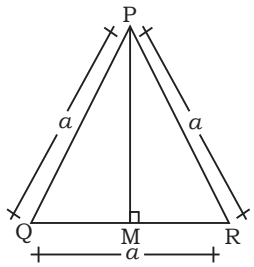
Addition of both speed = $\frac{40\text{km}}{4\text{hr}} = 10$ km/hr

Difference of both speed = 4 km/h

Speed of Julie = $\frac{10+4}{2} = 7$ km/h

Speed of Soma = $\frac{10-4}{2} = \frac{6}{2} = 3$ km/h

14. (b)



Height of equilateral $\Delta = \frac{\sqrt{3}}{2}a$

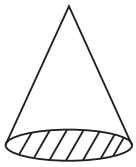
$PM = \frac{\sqrt{3}}{2}a \Rightarrow \frac{PM}{PQ} = \frac{\frac{\sqrt{3}}{2}a}{a}$

Both side square

$\left(\frac{PM}{PQ}\right)^2 = \left(\frac{\sqrt{3}}{2}\right)^2$

$\frac{PM^2}{PQ^2} = \frac{3}{4}$ So, $4PM^2 = 3PQ^2$

15. (a)



1 person have area = $5m^2$

15 person have area = $5 \times 15 = 75m^2$

So, $\pi r^2 = 75m^2$

Now, 1 person have volume = $30m^3$

1 person have volume = $450m^3$

So, $\frac{1}{3}\pi r^2 h = 450$

$\frac{1}{3} \times 75 \times h = 450$

$h = 18$ m

16. (c) Circumradius in equilateral $\Delta = \frac{a}{\sqrt{3}}$

Inradius in Equilateral $\Delta = \frac{a}{2\sqrt{3}}$

Difference = $\frac{a}{\sqrt{3}} = \frac{a}{2\sqrt{3}} = \frac{a\sqrt{3}}{6} = \frac{12\sqrt{3}}{6} = 2\sqrt{3}$

17. (a) $\sin(A + B) = \cos(A + B)$

$\frac{\sin(A+B)}{\cos(A+B)} = 1$

$\tan(A + B) = 1 \Rightarrow \frac{\tan A + \tan B}{1 - \tan A \tan B} = 1$

$\tan A + \tan B = 1 - \tan A \tan B$

$\tan A + \tan A + \tan B = 1 - \tan B$

$\tan A (1 + \tan B) = 1 - \tan B$

So, $\tan A = \frac{1-\tan B}{1+\tan B}$

18. (d) Principal = 100%

Time →	8y	6y	4y
Rate % →	7.25%	8.5%	6.5%
SI = rt →	58%	51%	26% 135%

135% = 35100

100% = $\frac{35100}{135\%} \times 100\% = \text{Rs.}26000$

19. (c)

	Ram	Ramesh	Naresh
Mistaken →	3	4	6
Actual →	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{6}$
⇒	4	3	2

Clearly, Naresh gained the most his actual portion = $\frac{2}{9} \times 702 = 156$

Mistaken portion = $\frac{6}{13} \times 702 = 324$

$\Rightarrow 324 - 156 = \text{Rs.}168$

20. (a) L.C.M. of (12, 15, 20, 30) = 60
540, 600, 660, 720, 780, 840, 900
Total numbers = 7

21. (d) $\frac{MP}{CP} = \frac{100 \pm P/L}{100 - D}$

$\frac{130}{100} = \frac{105}{100 - x}$

$100 - x = \frac{1050}{13}$

$100 - x = 80.7$
$x = 19.23\%$

Alternate Method:-
CP = 100, MP = 130, SP = 105

So, discount % = $\frac{25}{130} \times 100\% = 19.23\%$

22. (a)

Investment →	3	:	4	:	8
Time →	$\frac{2}{3}$	:	$\frac{3}{4}$	:	$\frac{5}{8}$]×24
Profit →	2	:	3	:	5

Then, Time = 16 : 18 : 15

23. (a) $[a^2 + b^2 + c^2 - (ab + bc + ca)] = \frac{1}{2}[(a - b)^2 + (b - c)^2 + (c - a)^2]$

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$
$361 = 155 + 2(ab + bc + ca)$
$206 = 2(ab + bc + ca)$
$103 = ab + bc + ca$

Then, $155 - 103 = \frac{1}{2}[(a - b)^2 + (b - c)^2 + (c - a)^2]$

$52 \times 2 = (a - b)^2 + (b - c)^2 + (c - a)^2 = 104$

Alternate Method:-
$(a - b)^2 + (b - c)^2 + (c - a)^2 = 3(a^2 + b^2 + c^2) - (a + b + c)^2$
$= 3 \times 155 - (19)^2$
$= 465 - 361 = 104$

24. (a) Total time taken by raju = $\frac{256}{32} \times 4 = 32$ hour

Total time taken by akber = $\frac{256}{48} \times 6 = 32$ hour

Raju → 32 — 1
 > 32
Akber → 32 — 1

They will take time to complete the assignment

$= \frac{32}{1+1} = \frac{32}{2} = 16$ hours

25. (a) $\frac{8}{9} = 0.88$, $\frac{6}{11} = 0.5$, $\frac{4}{9} = 0.4 = \frac{13}{15} = 0.86$

So, $\frac{8}{9}$

1. If $\sqrt{\frac{a}{b}} = \frac{8}{3} + \sqrt{\frac{b}{a}}$ and (a+b) = 30, then what is the value of ab?

एकर्ि $\sqrt{\frac{a}{b}} = \frac{8}{3} + \sqrt{\frac{b}{a}}$ त्रि ुर्भ(a+b) = 30जिर्तिाbि ाकमिार्प एगजिः

SSC CHSL 03/08/2023 (Shift-01)

(a) 64 (b) 28
(c) 81 (d) 36

2. A reduction of 20% in the price of an apple enables a man to buy 10 apples more for Rs.54. The reduced price of apples per dozen is

स ेु ँ हिं ं दं क्तएँ लेंस्राअ ं दं लक्ेंस ं त लेंदं ु ह थ् ं सनह लेंम्पअें हिं तें ी तकें ेजीद ।हं ेंहकस े केलें िीएं (मैसक्ह ?हे हिं ं दं क्तएँ (ह

(a) Rs.4.32 (b) Rs.12.96
(c) Rs.10.80 (d) Rs.14.40

3. What is $\frac{3}{1^2 \times 2^2} + \frac{5}{2^2 \times 3^2} + \frac{7}{3^2 \times 4^2}$ +...... equal to?

$\frac{3}{1^2 \times 2^2} + \frac{5}{2^2 \times 3^2} + \frac{7}{3^2 \times 4^2}$ +.......कें ेंहिीिीं (ह

CDS 2024 (I)

(a) 1 (b) 4
(c) 7 (d) 9

4. If $x^4 + \frac{1}{x^4}$ = 1154, where $x > 0$, then what is the value of $x^3 + \frac{1}{x^3}$?

नकें $x^4 + \frac{1}{x^4}$ = 1154 (हि?(ेव $x > 0$ (हिएेंह $x^3 + \frac{1}{x^3}$ ेलेा ेंदनें (ह

(a) 205 (b) 214
(c) 185 (d) 198

5. A dealer sold a sofa set at a profit of 39%. Had he sold it for Rs.1565 less, he would have gained 29%. For what value should he sell it in order to gain 27%?

स ं ,नेसीदं ।हस ेंहक्ेंहं 02र ं हटे 5ें सीं िहे कें नक 4 ।हें ेहपु लु ें सनहं लं लेंमहिं (हेचएंह4 ेंहग2र ें टे 5ें (हेकें गइर टे 5ें ीक्ें ीींहं ेंहकस 4 हें ेंहकें लमें सीं िहे।ें % केंस

SSC GD 05/03/2024 (Shift-01)

(a) Rs.19,875.5 (b) Rs.16,526.4
(c) Rs.20,140.5 (d) Rs.11,576.4

6. Which of the following is TRUE?

कघ कक्कोएं लेहै हं ेंी7ें ेन्नें (ह

I. $\sqrt[3]{11} > \sqrt{7} > \sqrt[4]{45}$

II. $\sqrt{7} > \sqrt[3]{11} > \sqrt[4]{45}$

III. $\sqrt{7} > \sqrt[4]{45} > \sqrt[3]{11}$

IV. $\sqrt[4]{45} > \sqrt{7} > \sqrt[3]{11}$

(a) Only I (b) Only II
(c) Only III (d) Only IV

7. Rs.9400 is distributed among P, Q, R in such a way that is Rs.93, Rs.24, Rs.55 are deducted from their respective shares, then they have money in the ratio 3 : 4 : 5. What is the share of P?

9400 ें सनहं ेंहP, Q, R ें हिकि ू ें संये ी क्कएकेंएं कं ने ?एं (ी कें 4ी ें है मिक्केएं कहे ें है ेंह93 ें सनेंह, 24 ें सनह 55 ें सनहं 8ें कने ? स्चेएंह4। ेंहसे ें 3 : 4 : 5 ें हत।सेए लेंहसै ें (हेP ें ेंकहे ें नें (ह

(a) Rs.2307 (b) Rs.2376
(c) Rs.2508 (d) Rs.2896

8. If tanθ + secθ = 7, θ being acute, then the value of 5 sinθ is:

नकें tanθ + secθ = 7 (हि?(ेंव नछं ेंहें (हिएेंह5 sinθ ेें लेा ें दनें (ह

SSC CGL 01/12/2022 (Shift-03)

(a) $\frac{25}{24}$ (b) $\frac{24}{25}$
(c) $\frac{1}{24}$ (d) $\frac{24}{5}$

9. A policeman follows a thief, who is 1250 m ahead of him. The policeman and the thief run at the speed of 10 km/h and 8 km/h, respectively. The distance (in km) run by the thief before he is nabbed by the policeman is:

स ेें सक्है ं लेंक्स ें %हिं ें सक्ें ीएें (हि?ेंहै ेंह1250 लक्ी त)ह(मसक्है ं लेंक्तें ी %हिं बलोे ॅ 10 कं लक्ें भें तें ी 8 कं लक्ें भें ं दं %टें ें ह ीप्टूंह(मसक्है ं लेंक्ेडी ं सं :ेंह? ।हें ह स(टेह% हिं डी ेंएनें ं दं)ें उिछें कं लेंदलों कं ए।दं(ह

SSC CGL 14/07/2023 (Shift- 4)

(a) 7 km (b) 4 km
(c) 5 km (d) 6 km

10. There were 70 students in a hostel. After admission of 14 new students, the expenses of mess increases by Rs.28 per day while the average expenditure per head diminished by Rs.1. What was the original expenditure of the mess?

स ˘ श्रे है खे ˘ लम्हइअं श्रे हें रेल्हमपर्थ ।स श्रे हैम्ह ह1खे ˘ हर्ि च लेह˘ ˙˘ ध%उगर्ग ˘ सत्तंह 1वं कउ˙ हर्ि रेक्ष? ए˘ (म्?ि क 1वं ,नके ˘ त ौ ए ,नन पं˘ सत्तंह ल (ˇह)ने के लेह˘ ˙˘ लछ ,नन ध्ने ˘ रे ह्र

CRPF HCM 26/02/2023 (Shift - 03)

(a) Rs.550 (b) Rs.560
(c) Rs.565 (d) Rs.652

11. The value of/ ˘ ˘ ले। ध्ने ˘ (ह्र

$$(2\cos^2\theta - 1)\left[\frac{1+\tan\theta}{1-\tan\theta} + \frac{1-\tan\theta}{1+\tan\theta}\right] \text{ is:}$$

SSC CPO 09/11/2022 (Shift-01)

(a) 2 (b) 0
(c) $\frac{\sqrt{3}}{2}$ (d) 1

12. In ΔABC, AB = AC, O is a point on BC such that BO = CO and OD is perpendicular to AB and OE is perpendicular to AC. If $\angle BOD = 60°$, then measure of $\angle AOE$ is:

ΔABC लम्ह AB = AC, O, BC सीं स ˘ कीमर्ट् ˘ संये ि (ाकं ˘ BO = CO त ि OD, AB सीं टर्घ खं (ात ि OE, AC सीं टर्घ खं (ह्र नकं $\angle BOD = 60°$ (ह्र ऐ ह $\angle AOE$ ˘ ˘ लेसं ु ए ˘ कह्रस्क

SSC GD 02/12/2022 (Shift-02)

(a) 120° (b) 60°
(c) 30° (d) 90°

13. Which number when added to each of the numbers 6, 7, 15, 17 will make the resulting numbers proportional?

ल्चइंचपु चपइं लम्ह ˘ ।? दंसैहदै ख्ने ?ह्हं? नहकं ˘ सकि˙ लद ˆ ख्ने स्कं से ˘ लम्ह ले।सेएदं (ह

(a) 6 (b) 5
(c) 4 (d) 3

14. If the length of certain rectangle is decreased by 4 cm and breadth is increased by 2 cm, it would result in a square of the same area. What is the perimeter of the original rectangle?

नकं कं ˘ दंत नएं ˘ दंटमी् ˘उ४ˆ ह्हं लं ˘ ि दं?एदं (ात ि %ाक्षु्उग ˆ ह्हं रेक्ष दं?एदं (ह्र ऐ हम्ह एहृदकेहसट ˘ ˙˘ ख)र्ग। ?ए ˘ (म्लक्ष त नएं ˘ ˘ सकेलसं ु ए ˘ िह्र

(a) 15 cm (b) 24 cm
(c) 20 cm (d) 10 cm

15. The remainder of the term $9 + 9^2 + ... + 9^{(2n+1)}$ when divided by 6 is:

?ि स ˘ $9 + 9^2 + ... + 9^{(2n+1)}$ ˘ ˘ हल्ै ह्डें)कने ˘ ? ए ˘ (ाएह ३हेसट ˘ कएं ˘ (हो ह्र

SSC CHSL, 11/08/2023 (Shift-4)

(a) 1 (b) 4
(c) 2 (d) 3

16. Two equal sums were lent on simple interest at 6% and 10% per annum respectively. The first sum was recovered two years later then the second sum and the amount in each case was Rs.1105. What was the sum (in Rs.) lent in each scheme?

˘ हर्ि ि ज़्ा। कं ने ह्ं ˘ हबले ६ ˘ लं ˘ त ि प3ा ˘ सख्हखें उ दव ˘ ज़ा।˙ ने ?ˆ सीं 4ज़ा ि कने ˘ ? ए ˘ (म्स(टदंज़ा। के ˘ ˘ ह्ˆ छीद ज़ा। के ˘ ˘ ह्˘ हखें ह्र ˘ खसै ˘ कने ˘ ? ए ˘ (ात ि सम्ाह ˘ कहेक्क लम्हज़ा। के ˘ पपउ ˘ सत्तंह रेलं सम्ाह ˘ ने हे। ˘ लम्ह4ज़ा ि ˘ द)नद ज़ा। के ˘ ˘ सत्तंहलम्ह ध्ने ˘ रेक्

SSC CGL 13/08/2021 Shift-03)

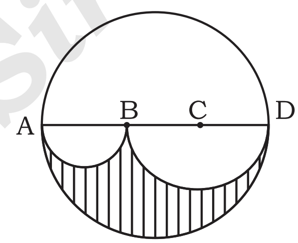
(a) Rs.900 (b) Rs.850
(c) Rs.891 (d) Rs.936

Consider the following for the next two questions that follow:

त)टैह ˘ हस्हखो ˘ ह्ं ˘ हकर्स कधकक्का ए ˘ सीं क्ह ि ˘ िह्र

Let ABCD be the diameter of a circle of radius 6 cm. The lengths AB, BC and CD are equal. Semi-circles are drawn with AB and BD as diameters as shown in the figure given below.

ले। ˘ कं ˘ ABCD लं ˘ ह्हं केण्ने ˘ खेटहस ˘ खें ˘ ˘ ,नैं ˘ (ह्र टमी्उAB, BC त ि CD ि ि ि (म्?ि ˘ कं ˘ ।क्हकस)स कहे लम्हकध ने ˘)नें ˘ (म्AB त ि BD ˘ ˘ ह ,नैं ˘ ले।ि त ज़ेखके ˘ ध कह)सं ˘ (ह्र



17. What is the ratio of the area of the shaded region to that of the non-shaded region?

श्रे ने कं ए ˘ कुे ˘ ह कुेसट ˘ ˙˘)ा7श्रे ने कं ए ˘ कुे ˘ ह कुेसट ˙ हत ।सेए ˘ ध्ने ˘ (ह्र

CDS 2024 (I)

(a) 2 : 7 (b) 2 : 5
(c) 3 : 5 (d) 5 : 8

18. What is the perimeter of the shaded region?

श्रे ने कं ए ˘ कुे ˘ ˘ सकेलसं ध्ने ˘ (ह्र

CDS 2024 (I)

(a) 24π cm (b) 18π cm
(c) 15π cm (d) 12π cm

19. Two trains are travelling in the same direction on parallel tracks. Train A is travelling at 30 km/h and Train B is travelling at 60 km/h. If Train A is 400 m long and it takes Train B two minutes to pass Train A, what is the length of Train B?

ˆ ले। सीं स8कने ह्सीं ˘ हीह)कह्रेमस ˘ (दं कउें ˘ लम्ह%ट ि(दं (म्हीह):हं A च0अं कं लद् है ˘ दं % ट ˆ हने है ि(दं (ात ि ीह):हं B च्लअं कं लद् है ˘ दं % ट ˆ हने है ˘ ि ि(दं (म्नकं ीह):हं A ˘ दटमी् उ४3अं लदं (ात ि ीह):हं B ˘ हीह):हं A ˘ हसीं ˘ ि।हलम्ग कल्ल ८ ˘ ˆ लनं ट)ए ˘ (म्एह्ीह):हं B ˘ दटमी् उंक ए।दं (ह्र

SSC MTS 13/09/2023 (Shift- 01)

(a) 500 m (b) 400 m
(c) 600 m (d) 700 m

20. **Water is pouring into a cuboidal reservoir at the rate of 50 litres per minute. The volume of the reservoir is 120 m³. How many hours will it take to fill the reservoir?**

स ्ें ो ें हते ेंि ह?टे 3 नें लेंषु अंटकीं 1क्यें का 8 ें दें िं हसे।दें : टे ? ि(ें (हें ?टे 3 नें ें ें ते नए। पगअें लदें (हें ?टे 3 नें ें हडे।ेहलहेंक एो हैं ह टे)हेह

MTS 04/09/2023 (Shift- 03)

(a) 30 hours (b) 40 hours
(c) 35 hours (d) 45 hours

21. **Ajit bought mangoes at the rate of 8 for Rs.34 and sold them at the rate of 12 for Rs.56. How many mangoes be sold to earn a net profit of Rs.35?**

त ?व्यें ।हु0 ें स्नेंहलेंहें दें िं हते लेंजीदहते िं 4व्हु लें स्नह लेंहमगें दें िं ह हें कने क्0 ें स्नेंहें 3 ढ टे ें तकीं ं ।ह ें हक्ट्र स ें क एो हते लेंहें ें ह हें ें ? ।ें % कस्स

(a) 84 mangoes (b) 86 mangoes
(c) 89 mangoes (d) 96 mangoes

22. **After giving two successive discounts, each of x%, on the marked price of an article, the total discount is Rs.259.20. If the marked price of the article is Rs.720, then the value of x is:**

स ें खज़ें हतक एें लज़ें सीं x% ें दें हबकां ें श्हें हें ह िं खज़ें श्हें गु 2ज्ज़ें स्नेंह(हेंनकें खज़ें ें तक एें लज़ें इगअ ें स्नेंह(हेंएेंहx ें ले।ें ें ।ह

(a) 18 (b) 24
(c) 20 (d) 25

23. **The 3rd and 7th term of an arithmetic progression are –9 and 11 respectively. What is the 15th term?**

स ें लेंसीं ऊहेदें ें एंदें िं ते िं एखेंक्स ें बल्डे ें72 ते िं पप (हेंपु खेंक्स ें ें ें ें (ह

(a) 28 (b) 87
(c) 51 (d) 17

24. **The sides of a triangle are in the ratio 4 : 6 : 8. The triangle is a/an:**

स ें केडेश ें दडेश ते हें ें त।सेएें ४ ें६ ें८ (हेंखें ें ।?ें केडेश (हे ह

SSC GD 02/12/2022 (Shift-02)

(a) **Isosceles triangle**/ लक्हें (ेकेडेश
(b) **Obtuse-angled triangle**/ तकेंं ें ें हें केडेश
(c) **Acute-angled triangle**/ नछ ें हें केडेश
(d) **Right-angled triangle**/ लं ें हें केडेश

25. **To do a certain task X would take 3 time as long as Y and Z together and Z would takes 4 times as long as Y and X together. Three of them together can complete the take in 10 days. How much time is taken by X and Z to complete the task?**

स ें कक%एें ें लें ।ेहें हक्ट्र स X ें हें 4 दें ें लें ें हY ते िं Z ें हस ें ें ें हें कट िं ।ेहलहेंट)हे लनें ें ह0)हें ें लन ट)एें (ेते िं Z ें हेंY ते िं X ें हस ें ें ें हें कट िं ।ेहलह ट)हे लनें ें ह ें)हें लनें ट)एें (हेंएवे हेकट िं ें लें ें हपअ क।ेहलहेंपीडें िं एेंह(हेंX ते िं Z ें हस ें ें ें हें कट िं ल सीडें ।ेहलहेंक एो ें लनें ट)हे ह

(a) $18\frac{2}{9}$ days (b) $20\frac{1}{9}$ days
(c) $21\frac{1}{9}$ days (d) $22\frac{2}{9}$ days

ANSWER KEY

1.(c)	2.(b)	3.(a)	4.(d)	5.(a)	6.(c)	7.(a)	8.(d)	9.(c)	10.(b)
11.(a)	12.(c)	13.(d)	14.(c)	15.(d)	16.(b)	17.(a)	18.(d)	19.(c)	20.(b)
21.(a)	22.(c)	23.(c)	24.(b)	25.(d)					

SOLUTIONS

1. (c) $\sqrt{\frac{a}{b}} = \frac{8}{3} + \sqrt{\frac{b}{a}}$

Let a = 27, b = 3
then (a + b) = 27 + 3 = 30

$\sqrt{\frac{27}{3}} = \frac{8}{3} + \sqrt{\frac{3}{27}} \quad \Rightarrow \sqrt{9} = \frac{8}{3} + \sqrt{\frac{1}{9}}$

$3 = \frac{8}{3} + \frac{1}{3} \Rightarrow 3 = \frac{9}{3}$

3 = 3 satisfy So, a × b = 27 × 3 = 81

2. (b) 20% $\downarrow = \frac{-1}{5}$

So,

	Initial		Present	
Price →	5	:	4	
Quantity →	4	:	5	×10 → 50
	×10 ↓		1 unit = 10 apple	
	40			

then, present price of 50 apple = 54

present price of 1 apple = $\frac{54}{50}$

So, price of 12 apple = $\frac{54}{50} \times 12$ = Rs.12.96

3. (a) $\frac{3}{1^2 \times 2^2} + \frac{5}{2^2 \times 3^2} + \frac{7}{3^2 \times 4^2} + ...$

$\left(\frac{1}{1^2} - \frac{1}{2^2}\right) + \left(\frac{1}{2^2} - \frac{1}{3^2}\right) + \left(\frac{1}{3^2} - \frac{1}{4^2}\right) + ... + \left(\frac{1}{\infty^2}\right)$

$1 - \frac{1}{\infty^2} \Rightarrow 1 - 0 = 1$

4. (d) $x^4 + \frac{1}{x^4} = 1154$

$x^2 + \frac{1}{x^2} = \sqrt{1154+2} = \sqrt{1156} = 34$

$x + \frac{1}{x} = \sqrt{34+2} = \sqrt{36} = 6$

$x^3 + \frac{1}{x^3} = (6)^3 - 3 \times 6 = 216 - 18 = 198$

5. (a) CP of sofa set = 100%

SP_1		SP_2
39%	–	29%

10% → 1565

then, SP = $\frac{1565}{10\%} \times 127\% = 19875.5$

6. (c) $7^{\frac{1}{2}\times 12}$, $45^{\frac{1}{4}\times 12}$, $11^{\frac{1}{3}\times 12}$

7^6, 45^3, 11^4

Let compare with each other.

$7^6, 45^3$	$7^6, 11^4$	$45^3, 11^4$
$(7^2)^3, (45)^3$	$(7^3)^2, (11^2)^2$	91125, 14641
$49^3, 45^3$	$(343)^2, (121)^2$	$\sqrt[4]{45} > \sqrt[3]{11}$
$\sqrt{7} > \sqrt[4]{45}$	$\sqrt{7} > \sqrt[3]{11}$	

$\sqrt{7} > \sqrt[4]{45} > \sqrt[3]{11}$

7. (a) Initial Money = 9400
Total Deducted shares = 93 + 24 + 55 = 172
Remaining Money after deduction = 9400 – 172 = 9228
P : Q : R
3 : 4 : 5 → 9228
12 unit → 9228
1 unit = 769
3 unit = 769 × 3 = Rs.2307

8. (d)

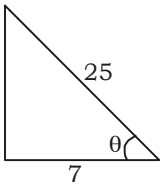
$\sec\theta + \tan\theta = 7$

$\sec\theta - \tan\theta = \frac{1}{7}$

$2\sec\theta = \frac{50}{7}$

$\sec\theta = \frac{50}{7\times 2} = \frac{25}{7}$

By triplet = 7, 24 , 25



Perpendicular = 24

So, 5 sinθ = 5 × $\frac{24}{25} = \frac{24}{5}$

9. (c)

Police		Thief
10 km/h	1250m	8 km/h

If time is constant then ratio of speed is directly proportional ratio of distance
So,

	Police		Thief
S / D	10	:	8
	5	:	4

1 unit = 1250m
4 unit = 1250 × 4 = 5000m

in km = $\frac{5000}{1000}$ = 5 km

10. (b) No. of student Avg. exp. Total exp.

70	x	$70x$
84	$(x-1)$	$84(x-1)$

$70x + 28 = 84x - 84 \Rightarrow 112 = 14x$

$x = 8$

Then, original expenditure = $70 \times x \Rightarrow 70 \times 8 = 560$

11. (a) $(2\cos^2\theta - 1)\left[\frac{1+\tan\theta}{1-\tan\theta} + \frac{1-\tan\theta}{1+\tan\theta}\right]$

$\cos^2\theta \times \left[\frac{(1+\tan\theta)^2 + (1-\tan\theta)^2}{1-\tan^2\theta}\right]$

$\cos^2\theta \times \left[\frac{(1+\tan^2\theta + 2\tan\theta + 1 + \tan^2\theta - 2\tan\theta}{1-\tan^2\theta}\right]$

$\cos^2\theta \times \frac{2(1+\tan^2\theta)}{(1-\tan^2\theta)}$

$\cos^2\theta \times 2 \times \frac{1}{\cos^2\theta} = 2$

Alternate Method:-

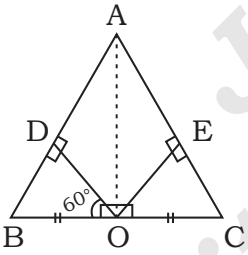
By value putting:-

$\theta = 0°$

$(2\cos^2\theta - 1)\left[\frac{1+\tan\theta}{1-\tan\theta} + \frac{1-\tan\theta}{1+\tan\theta}\right]$

$(2 \times 1 - 1)\left[\frac{1}{1} + \frac{1}{1}\right] \Rightarrow 1 \times 2 = 2$

12. (c)



ΔBDO and ΔCEO

$\angle BDO = \angle CEO = 90°$

$\angle BOD = \angle COE = 60°$

In ΔAOC

$\angle AOC = 90°$

then, $\angle AOE = \angle AOC - \angle EOC = 90 - 60 = 30°$

13. (d) 6 7 15 17

1 2

1 2

6 15

12 15

2 – 1 unit = 15 – 12

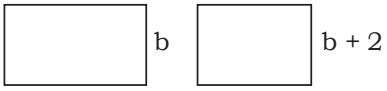
1 unit = 3

Alternate Method:

By option:

$\frac{6+3}{7+3} = \frac{9}{10} :: \frac{15+3}{17+3} = \frac{18}{20} = \frac{9}{10}$

14. (c)



$l - 4 = b + 2 \Rightarrow l = b + 6$

Area of rectangle = Area of square

$l \times b = (l-4) \times (b+2)$

$lb = lb + 2l - 4b - 8$

$O = 2(b+6) - 4b - 8$

$O = 2b + 12 - 4b - 8 - 2b + 4 = 0$

$4 = 2b$

$b = 2$ then, $l = b + 6$

$= 2 + 6 = 8$

Perimeter of rectangle = $2(l + b)$

$= 2(8 + 2) = 2 \times 10 = 20$

15. (d) Concept: $9^1 + 9^2 + \ldots\ldots + 9^{2n+1}$

$9^1 + 9^2 + 9^3 \ldots\ldots + 9^{2n+1}$

$\frac{\text{Odd number}}{6} \Rightarrow R(3)$ when given odd number of terms and divided by 6.

It's given remainder = 3

$\frac{\text{Even number}}{6} \Rightarrow R(0)$ When given even number of terms, and divided by 6.

It's given remainder = 0

16. (b) $SI_1 + SI_2$

$\frac{x \times 6 \times (t+2)}{100} = \frac{x \times 10 \times t}{100}$

$6t + 12 = 10t$

$12 = 4t \Rightarrow t = 3$

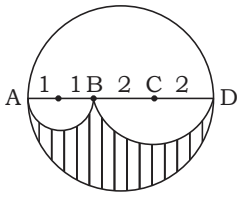
So, principal = 100%

Interest = $10 \times 3 = 30\%$

then, amount = 130%

$\frac{1105}{130\%} \times 100\% = Rs.850$

17. (a)



Let, AD = 6

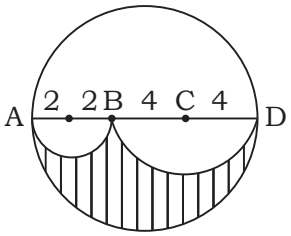
Area of complete Circle	:	Area of shaded Part
$\pi(3)^2$	:	$9\pi - \left(\frac{\pi\times(3)^2}{2} + \frac{\pi\times1}{2} + \frac{\pi\times(2)^2}{2}\right)$
9π	:	$\pi\left(9 - \frac{9}{2} + \frac{1}{2} + \frac{4}{2}\right)$
9	:	9 – 7
9	:	2

Hence,

Area of shaded : Area of non-shaded

2 : 7

18. (d)



Circumference of all three semi Circle
$\Rightarrow \pi \times 2 + \pi \times 4 + \pi \times 6$
$= 2\pi + 4\pi + 6\pi = 12\pi$ cm

19. (c) Speed of A = 30 km/h
Speed of B = 60 km/h
then, relative speed = 60 – 30 = 30 km/h

Distance (length A + length B)

$= 30 \times \frac{5}{18} \times 2 \times 60 = 1000$ meter

Hence, length of train B = 1000 – 400
= 600 meter

20. (b) Volume of the reservoir = 120000 litre
Rate of pouring 50 litre/minute

Time in minutes = $\frac{120000}{50} = 2400$ min

Time in hours = $\frac{2400}{60} = 40$ hours

21. (a)

	Price	Article	
CP →	(34	8)×3	For make article equal
SP →	(56	12)×2	

Now, we can say that 24 mangoes sold at Rs.10 profit

Hence, $\frac{24}{10} \times 35 = 84$ mangoes

22. (c) $\frac{259.20}{720} \times 100\% = 36\%$
So, by option (c)

$-20 - 20 + \frac{-20 \times -20}{100}$

$-40 + 4 = -36$ discount (satisfied)
Hence, $x = 20$

23. (c) $a + 2d = -9$
$a + 6d = 11$
$4d = 20$
$d = 5$

when subtract both equation:
then, $a + 6 \times 5 = 11$
$a = -19$
Now 15th term means $a + 14d$
$= -19 + 14 \times 5 = 51$

24. (b) 4 : 6 : 8
16 + 36 64
= 52 < 64
Sum of two sides square < third side square Hence, obtuse angle triangle

25. (d)

X : (Y + Z)	Z : (Y + X)
Time → 3 : 1	Time → 4 : 1
Eff. → (1 : 3)×5	Eff. → (1 : 4)×4
5 : 15	4 : 16

Eff. of X = 5
Eff. of Z = 4
Eff. of Y = 20 – 9 = 11
Then total work = 10 × 20

Time taken by X and Z = $\frac{10 \times 20}{9} = 22\frac{2}{9}$ days

1. Find the H.C.F. of $(5^{35} - 1)$ and $(5^{84} - 1)$?

$(5^{35} - 1)$ ´ `´ïj $(5^{84} - 1)$ f ˘ d(लेदं एदे गअ्रणि तH.C.F.ˇ ३ रॅ f क्वास्न

(a) $5^6 - 1$ (b) $5^{14} - 1$
(c) $5^3 - 1$ (d) $5^7 - 1$

2. The sum of the series: (–50) + (–45) + (–40) + ... + 60 + 65 + 70, is:

पेप्ेिटे ˘ (–50) + (–45) + (–40) + ... + 60 + 65 + 70ॅ f ˘ जेह्गाटॅ (क्र

(a) 200 (b) 195
(c) 250 (d) 275

3. Money is doubled in a bank account in 7 years, when the interest is compounded annually. What time in years is needed to make an amount 8 times in the bank?

सर्क यो्ने सें अे्क्वे्रि उ गॅ एॅहएयो्हानॅ कि जें से रें (ॅ f रे ह स्f क्मि वे रॅहदॅह्े ,` के ˘ ८ अ्ेॅचदॅहे )0ˇ (ॅहसे रॅ (ए 5एॅ ६,` कें f हकमि दॅह्%)0ˇ f ,हf हक्ास कि र ,हअ्ेॅर्च ˘ एदजें ट)हे न

SSC MTS 14/09/2023 (Shift- 02)

(a) 35 years (b) 28 years
(c) 21 years (d) 14 years

4. A dealer gives a discount of 7% on the marked price and gives 1 article free for every 25 articles purchased and thus makes a profit of 25%. Find the percentage increase in the marked price over the cost price. (up to two decimal places)

स्f ४टे ˘ ` क्रि रॅ दूल्जें गै ˘ 7% f ˘ डूi हें (ïi `ïj (ˇ क्र अ्ए0ॅ ह्f ˘ ज्ञै ˘ ˇ गै ˘ ए अ्ए्ेएा्ए हें (ïi `ïj 5एॅ गf ˘ 25% f ˘ टे खें f दे रें (ए खजें दूल्जें एॅह क्मि गै ˘ ` क्रि रॅ दूल्जें दह गके रॅ अ्के ३ रॅ f क्ास्2त े दटअ्ें f हे ह्पे ,ॅह्ि 2

SSC CHSL 04/08/2023 Shift-03

(a) 1.4% (b) 37.88%
(c) 38.87% (d) 39.78%

5. What is the simplified value of $\text{cosec}^3 x - \dfrac{\cos^2 x}{\sin^3 x}$

क.,क्व्ोरॅ f ˘ ऐ ट र्श रॅ दे ,ॅ (क्र

$\text{cosec}^3 x - \dfrac{\cos^2 x}{\sin^3 x}$

(a) sec x (b) cos x
(c) tan x (d) cosec x

6. A certain number of men completes a piece of work in 50 days. If there were 15 men more the work could be finished in 10 days less. How many men were originally there?

स्f ककबरॅ एप्रजें दॅहउजकरॅ स्f f जॅचि हछॅ क,्हदह गैˆ ˘ f रॅह(ए जकॅ ` कैकभ्रॅ ६छे उजकरॅ ( हहॅ रॅ हf जग्र एदे रॅ ( हहॅदॅहदॅ क,ॅ f दें ट )रॅह :` खें दॅह्अ्ॅ क्षेकि र ,ह उजकरॅ ठे ह्

(a) 40 men (b) 50 men
(c) 60 men (d) 30 men

7. If $\left(x + \dfrac{1}{x}\right) = 2\sqrt{2}$, and $x > 1$, what is the value of $\left(x^6 - \dfrac{1}{x^6}\right)$?

जकॅ $\left(x + \dfrac{1}{x}\right) = 2\sqrt{2}$ ˘ `ïj $x > 1$, (ॅ f रॅह $\left(x^6 - \dfrac{1}{x^6}\right)$ f ˘ दे ,ॅ भ्जें (हे न

SSC CGL 19/07/2023 (Shift-01)

(a) $140\sqrt{2}$ (b) $116\sqrt{2}$
(c) $144\sqrt{2}$ (d) $128\sqrt{2}$

8. What is the least value of $x+y$, if 10 digit number $780x533y24$ is divisible by 88?

जकॅ ६ए ˘ मि ह्f ˘ एप्रजें $780x533y24$, %% एॅहक्ारे्वे डज (ॅ f रॅह $x+y$ f ˘ . जु,रदॅ दे ,ॅ भ्जें (म

SSC CHSL 03/08/2023 Shift-04

(a) 4 (b) 3
(c) 1 (d) 2

9. The incomes of P, Q and R are in the ratio of 9 : 15 : 10 and their savings are in the ratio is 10 : 15 : 12. If R spends 60% of his income, what is the ratio of the expenditures of P, Q and R?

P, Q `ïi R f ˘ ` जें ६ क्ृ६छे क्ृ६ए f हे ,ध्े रॅ दह (ïi `ïj ८,f ˘ क्वबरॅ ६ए क्ृ६छे क्ृ६क्े f हे ,ध्े रॅ दॅह( ए जकॅ R ग,ˇ ` जें f ˘ स्ऩ्ध व बर्चि रॅ (ॅ f रॅह P, Q `ïi R f हउजजें f ˘ ,ध्े रॅ भ्जें (म

MTS 05/09/2023 (Shift- 01)

(a) 17 : 30 : 18 (b) 17 : 18 : 30
(c) 18 : 17 : 30 (d) 18 : 30 : 17

10. If $2^x + 3^y = 17$ and $2^{x+2} - 3^{y+1} = 5$, then find the value of x and y.

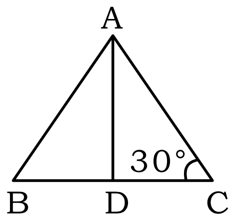
जकॅ $2^x + 3^y = 17$ रठॆ $2^{x+2} - 3^{y+1} = 5$ (ॅ रॆ हx ॅ ेा y f ॅ दे ,ॅ ॆ रॅ f ह्र

SSC CGL MAINS 07/03/2023

(a) $x = 1, y = 3$ (b) $x = 3, y = 3$
(c) $x = 3, y = 2$ (d) $x = 1, y = 2$

11. In the given figure, AD is median, AB = AC = 6 cm and ∠ACB = 30°. Find the length of median AD.

ॅ)र्ॅचं ` श कॅ दह्ल AD दे कार्ज ॅ (ॅ AB = AC = 6 एहॅ ` ेा ∠ACB = 30° (ॅ दे कार्ज ॅ AD f ॅ टबे र्ॅच ॆ रॅ f कास2



(a) 6 cm (b) 3 cm
(c) 8 cm (d) 5 cm

12. The sum of the length and the breadth of a cuboid is 4 cm. Length is three times of breadth. If the height of the cuboid is half of the sum of its length and breardth, then what is the total surface area of the cuboid?

र्f रु, खॅ f ॅ टबे र्ॅचं ेा बे मेर्ॅचा ॅ जेहॅ ृ एहॅ ढ्ढ(ट.के र्ॅच बे मेर्ॅचा ॅ र ,ॅ)0ॅ (ॅ जकॅ रु, खॅ f ॅ र्ॅच ष्एf ॅ टबे र्ॅचं ेा बे मेर्ॅचा हजेॅ f ॅ `ॅ ६ॅ (ॅ रॆ हरु, ख f ॅ f र्ॅ गी- जं ॅ ेगाट भ्जें (म

SSC CHSL 20/03/2023 (Shift-02)

(a) 64 cm² (b) 22 cm²
(c) 32 cm² (d) 30 cm²

13. Aman found the averages of a few terms to be 40 but misread 17 as 71 and hence the average increased by 2.7 units. Find the number of terms which he added.

दं ,ॅ ,हf ॅ ग `ॅ ह्रा ॅ ` एरॅ ृ ॅ f हउगॅ ॆ रॅ कॅ जे टर्क ,ॅ ष्ए,हृ8 f ॅ ह)टरॅ उगॅ एॅह8ॅ गठॅब जें `ा 5एकरॅ `एरॅ दहॅ 5f र्ॅचा ॅ अंक ॅ (ॅ ह)ॅच्र ष्एf ह ढॆ ॅ से हॅ)रॅ ग `ॅ ह्रा ॅ एझजें ॆ रॅ f कास2

(a) 20 (b) 30
(c) 10 (d) 40

14. If $\frac{5+4\sqrt{3}}{2\sqrt{3}+3} = a - \frac{b}{\sqrt{3}}$ then the value of (a + b) is:

जकॅ $\frac{5+4\sqrt{3}}{2\sqrt{3}+3} = a - \frac{b}{\sqrt{3}}$ (ॅ रॆ ह(a + b) f ॅ दे ,ॅ (क्र

(a) 2 (b) 4
(c) 5 (d) 6

15. Two friends P and Q simultaneously start running from same point around a circular track. They run in the same direction. P runs at 6 m/sec and Q runs at b m/sec. If they cross each other at exactly two points on the circular track and b is a natural number less than 6, then how many values can b take?

`हकॅ P ` ेा Q र्f ऐ ेॅ र्f अॅत f ॅ 1कॅ गै ॅ र्f (क्कांएह ` मेॅ े छ f रॅ ह मॅह र्f ( कॅ ॅ दॅह मॅ हमP, 6 दै ा ऽएह मॅ f ॅ बे ट एॅह ` मेॅ (ॅ ेा Q, b दै ा ऽएह म f ॅ बे ट एॅह ` मेॅ (ॅ जकॅ अॅत f ॅ गठॅ गै ॅ -f ॅ `ह क्कांएॅ ह्रा र्f ऐॅ ह हॅ f रॅह म ॅ ेा b र्f ः श रॅ एझजे (ॅ सेॅह र्ु एॅह दॅ (ॅ रॆ हb f हकर ,हदे ,ॅ (ॅ हए रॅह म

SSC CGL 14/07/2023 (Shift-03)

(a) 2 (b) 1
(c) 4 (d) 3

16. AP and AQ are two tangents to a circle with center O. If ∠PAQ = 64° then find the measure of ∠OQP.

AP ` ेा AQ f ॅ O अेटहर्f अॅ f ॅ `हप्रकॅ चा र्ृ (ॅ जकॅ ∠PAQ = 64° (ॅ रॆ ह∠OQP f ॅ दे गॅ ॆ र f कास2

(a) 32° (b) 12°
(c) 16° (d) 10°

17. A medical store owner purchased medicines worth Rs.18,000 from a company. He sold $\frac{2}{5}$ part of the medicine at a 35% loss. On which gain, he should sell the rest of the medicines so that he has neither gain nor loss?

र्f दह्ल f टॅ प्रॅ हॅ f हदे कॅ f ,हर्f f म,ॅ एॅह 18,000 ॅ गजॅह f ॅ अे र्ॅचे क्ष्वॅ ` मॅ अ(अॅ f ॅ $\frac{2}{5}$ ॅ खे) श्ह्य f ॅ (कॅ गै ॅ क्ह्र रॅ (ॅ ष्एॅह े हॅ अे र्ॅचे क्ष्कॅ एॅ ट खे गै ॅ क्ह्र ,ॅ बे कॅ रॅ रे कॅ ष्एॅह ,ॅ रॅ हॅ f हॅचटे खॅ (ॅ ह ेा ,ॅ (ॅ f हॅचॅ कन

SSC MTS 13/09/2023 (Shift- 02)

(a) $23\frac{1}{3}\%$ (b) $20\frac{2}{3}\%$
(c) $23\frac{2}{3}\%$ (d) $20\frac{1}{3}\%$

18. If $4a - \frac{1}{3a} = 8$, then find the value of $\frac{4a^2}{24a+1+8a^2}$

जकॅ $4a - \frac{1}{3a} = 8$ (ॅ रॆ ह $\frac{4a^2}{24a+1+8a^2}$ f ॅ दे , ॆ रॅ f कास्क

(a) $\frac{1}{3}$ (b) $\frac{1}{4}$
(c) $\frac{1}{5}$ (d) $\frac{2}{5}$

19. **The price of a fan is first decreased by 28% and then increased by 35%. If the resulting price is Rs. 1,215, find the original price of the fan.**

र्फ गब ह हदूल्जं दक्षा(टहक्रश्ध्र्ं f˜ fर्द f˜ से र्ं (र्‍f ˆ ‘ौ क़ा˜ श्छर्ध्र f˜ अक्र f˜ से र्ं (२ जक्रं गक्रद्रे र्द दूल्ज ध्म्क्ष्छ˜ गजह(र्f रे हगब ह f˜ दूट दूल्जं थ रं f˜ क्षार2

MTS 01/09/2023 (Shift-02)

(a) Rs.1,250 (b) Rs.1,520
(c) Rs.2,150 (d) Rs.1,052

20. **In a solution of water and milk, the quantity of milk is double the quantity of water. To pass the quality standards, the solution must contain 90% milk in it. If the volume of the solution is v, then how much pure milk in to be added to the solution to pass the quality standard?**

गे ,˜ ‘ˆ ॉ ू˜ f हेरे हं दक्ष ू˜ f˜ देर्प गे , f˜ देर्प एह ˋ हे0˜ (२)प्रे अर्ले दे ,f क्ष्मा वै˜ ˋ रै ,ह f हक्ष र्ं रे हं दक्ष 6टर्ध्र ू˜ (हे ˜ बे क्षार2 जक्रं रे हं f˜ ˋ जर ,˜ v (र्f रे ह)प्रे अर्ले दे ,f गै˜ वै˜ ˋ रै ,ह f हक्ष र्ं रे हं दक्षा र,˜ ˜ ० ू˜ क्षाट जें से र्ं)न

SSC CHSL 02/08/2023 Shift-02

(a) $\frac{4}{3}v$ (b) $\frac{3}{4}v$

(c) $\frac{7}{4}v$ (d) $\frac{7}{3}v$

21. **Rs.8000 becomes Rs. 10400 in 2 years at simple rate of interest. If the numerical value of rate of interest increased by 5, then find the simple interest accrued in 2 years on the same principal.**

ऐ ध्‍ द्रें य्जे सं ˆ˜ गै˜ %ट्टट˜ गजह क्र अ?चद हद्र्६ू ट्ट ˜ गजह(ह से रं ह(ह जक्रं य्जे सं ˆ˜ f हएक्ष्जे क्षा˜ दे ,˜ दक्षछ f˜ अक्र (हं (र्f रे हएदे , दूट६ ,गै˜ क्र अ?हद हं क्षास्र ऐ ध्‍ द्रें य्जे सं थ रं f˜ क्षार2

(a) Rs. 3100 (b) Rs. 3000
(c) Rs. 3300 (d) Rs. 3200

22. **A boat covers a certain distance downstream in 5 hours but takes 8 hours to return upstream to the starting point. If the speed of the stream is 6 km/h, find the speed of the boat in still water.**

र्फ ,अं ध्‍ˆ f हं ,0ट र्फ ककबरं ू˜ छ रेमहदक्ष रजं f र्ं (ाटक्ष ,˜ ध्‍ˆ f ह:कट्र :˜ क्षे f˜ क्षा0 गै˜ ट ग ,ह दक्ष% रेमहf˜ एदजं टह (२ जक्रं ध्‍ˆ f˜ बे टं रू क दर्द ३ रेमे˜ (र्f रे हक्षै˜ सट दक्ष, अं f˜ बे ट थ रं f˜ क्षार2

SSC MTS 08/09/2023 (Shift- 02)

(a) 78 km/h
(b) 26 km/h
(c) 13 km/h
(d) 39 km/h

23. **If cos(3α) = sin(α – 22°), where 3α < 90°, then what is the value of α?**

जक्रं cos(3α) = sin(α – 22°), स(˜ क्ष3α < 90°, रे ह f˜ दे ,˜ भ्जें (हे न

SSC CHSL 02/08/2023 (Shift-03)

(a) 29°
(b) 26°
(c) 27°
(d) 28°

Direction : Study the given table carefully and answer the following question.

˜)र्‍चे क्षा f˜ 9जे ,गुअf ˆ 9जज,˜ f क्षा र्ं ˆ ‘ॉ क.,क्षाक्षार :र्ठ ,˜ f˜ र्फ रै ˆ क्षार2

The table shows the percentage of students of four departments - Mechanical, Civil, Computer Science and Applied - with each student being in only one department. The table also shows the number of students of these four departments in five different colleges, with the total number of students being 2080.

रे क्षा f˜ बै˜ क्षाखे)हं द f क्षा f टर्‍ क्षाक्षाट र्‍ र्f म्लू˜ ऐ 5र्थ ˆ ‘ा र्फ ट 54 हं f हक्ष्द्दे के चेर्ह ह: क्षा रे र f ह र्‍ र्सं (र्f क्षाएदक्ष त्रहे क्षाद्दे ˆ ेर्च हट र्फ क्षाखे) दक्ष(२ रे क्षा f र्‍ क्षाद्दे के चेर्ह f˜ f ह एक्ष्जें क्र%˜ (हं हए˜ ेग बर्ं ट)हं ट) f ट्ठ हें हक्षह, बै˜ क्षाखे)ह f हक्ष्द्दे के चेर्ह f˜ एक्ष्जें खेर्ं र्‍ र्सं (२

College	Number of students	Mechanical	Civil	Computer Science	Applied
IIT Delhi	430	–	20%	–	10%
IIT Kanpur	350	20%	–	25%	–
IIT Bombay	–	20%	18%	–	32%
IIT Madras	–	–	25%	18%	35%
IIT Guwahati	400	20%	22%	–	20%

24. **If the number of students in IIT Bombay is 20% less than the number of students in IIT Madras, then the number of students in IIT Bombay is:**

जक्रं IIT के श्र्ह दक्षक्षाद्दे के चेर्ह f˜ एक्ष्जें र्‍ IIT द ˆर्ं दक्षक्षाद्दे के चेर्ह f˜ एक्ष्जें ऍह क्रर्ध्र f दं (र्f रे ह IIT के श्र्ह दक्षक्षाद्दे के चेर्ह f˜ एक्ष्जें क र ,˜ (ह

SSC CGL 14/07/2023 (Shift-03)

(a) 300
(b) 500
(c) 200
(d) 400

25. **A shopkeeper usually makes a large gram flour laddu (circular in shape) of radius 9 cm. How many gram flour laddus of radius 3 cm can be made from this big gram flour laddu?**

$\left(\text{Take } \pi = \frac{22}{7}\right)$

एक दुकानदार आमतौर पर 9 cm त्रिज्या का एक बड़ा बेसन का लड्डू (आकार में गोलाकार) बनाता है। इस बड़े बेसन के लड्डू से 3 cm त्रिज्या के कितने बेसन के लड्डू बनाए जा सकते हैं?

SSC CHSL 04/08/2023 Shift-03

(a) 27
(b) 9
(c) 18
(d) 36

ANSWER KEY

1.(d)	2.(c)	3.(c)	4.(d)	5.(d)	6.(c)	7.(a)	8.(d)	9.(a)	10.(c)
11.(b)	12.(b)	13.(a)	14.(c)	15.(b)	16.(a)	17.(a)	18.(c)	19.(a)	20.(d)
21.(d)	22.(b)	23.(d)	24.(d)	25.(a)					

SOLUTIONS

1. (d) $(5^{35} - 1)\ (5^{84} - 1)$
HCF of powers (35, 84) = 7
Hence, $(5^7 - 1)$

2. (c) – 50 – 45 – 40 – 35 ..... –10 + 1 + 2 .... + 40 45 + 50 + 55 + 60 + 65 + 70
– 50 + 50 = 0, – 45 + 45 = 0, – 40 + 40 = 0
(–50) to (+50) all numbers is '0' because (+ –) is canceled
Now, Remaining numbers = 55 + 60 + 65 + 70 = 250

3. (c) **1st Method:**

$P \xrightarrow{7\text{ yrs.}} 2P \xrightarrow{7\text{ yrs.}} 4P \xrightarrow{7\text{ yrs.}} 8P$

⇒ Total 21 years

2nd Method:

Times	Year
$2 = 2^1$	7
	↓
$8 = 2^3$	$7 \times 3 = 21$ years

4. (d) 100 : 93
26 : 25
4 : 5

Now,

CP		MP
$4 \times 25 \times 93$	:	$5 \times 100 \times 26$
93	:	130

Increase marked price (in %) = $\frac{37}{93} \times 100$
= 39.78%

Alternate Method:

MP		SP
100	:	93
26	:	25

Now,

MP		CP
100×26	:	$93 \times 25 \times \frac{4}{5}$
$100 \times 26 \times 5$	:	$93 \times 25 \times 4$
93	:	130

Increase marked price (in %) = $\frac{37}{93}$ × 100 = 39.78%

5. (d) $\text{cosec}^3 x - \frac{\cos^2 x}{\sin^3 x}$

$\Rightarrow \text{cosec}^3 x - \frac{\cos^2 x}{\sin^2 x \times \sin x}$

$\Rightarrow \text{cosec}^3 x - \frac{\cos^2 x}{\sin^2 x} \times \frac{1}{\sin x}$

$\Rightarrow \text{cosec}^3 x - \cot^2 x \times \text{cosec}\, x$

$\Rightarrow \text{cosec}\, x\ (\text{cosec}^2 x - \cot^2 x)$

$\Rightarrow \text{cosec}\, x \times 1 = \text{cosec}\, x$

6. (c) Let, initial number of men = x
$x \times 50 = (x + 15) \times 40$
$5x = 4x + 60$
$x = 60$ men

7. (a) $\left(x^6 - \frac{1}{x^6}\right) = \left(x^3 + \frac{1}{x^3}\right)\left(x^3 - \frac{1}{x^3}\right)$

If $\left(x + \frac{1}{x}\right) = 2\sqrt{2}$

then $\left(x^3 + \frac{1}{x^3}\right) = (2\sqrt{2})^3 - 3 \times 2\sqrt{2}$

$= 16\sqrt{2} - 6\sqrt{2} = 10\sqrt{2}$

$\left(x^3 + \frac{1}{x^3}\right) = 10\sqrt{2}$ then $x^3 + \frac{1}{x^3}$

$= \sqrt{(10\sqrt{2})^2 - 4} = \sqrt{200 - 4} = \sqrt{196} = 14$

So, $10\sqrt{2} \times 14 = 140\sqrt{2}$

8. (d) 88 = 8 × 11
Divisibility Rule of 8: Last three digits should be divisible by 8

$\frac{y24}{8} = \frac{024}{8} = 3$

So, y = 0
Divisibility Rule of 11: Sum of alternative digits should be 0 or multiple of 11.
780x533024
7 + 0 + 5 + 3 + 2 = 17
8 + x + 3 + 0 + 4 = 15 + x
17 – (15 + x) = 0
17 – 15 + 2 = 2
So, x = 2
Hence, x + y = 2 + 0 = 2

9. (a)

	P	Q	R
Income	$9x$	$15x$	$10x$
Saving	10y	15y	12y

R spends 60% then, save 40%

So, $10x \times \frac{40}{100} = 12y$

$\frac{x}{y} = \frac{3}{1}$

Now,

	P	Q	R
Income	27	45	30
Saving	10	15	12
Exp.	17	30	18

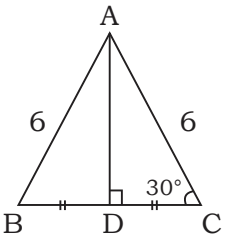
10. (c) By option:-
x = 3, y = 2
$2^x + 3^y = 17$
$2^3 + 3^2 = 17$
8 + 9 = 17 (satisfied)

$2^{x+2} - 3^{y+1} = 5$

$2^5 - 3^3 = 5$

$32 - 27 = 5$ (satisfied)

11. (b)

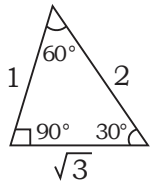


By sin30°:-

$\sin 30° = \frac{AD}{AC} \Rightarrow \frac{1}{2} = \frac{AD}{6}$

$AD = 3$

Alternate Method:-



2 unit = 6

1 unit = 3

In isosceles triangle. median divide the side equally and make 90° angle.

12. (b) $\underset{3}{l} : \underset{1}{b} \quad h \quad 2$ then $\Rightarrow l = 3$, b = 1, h = 2

$\underbrace{\quad}_{4}$

Total surface area of cuboid = $2(lb + bh + hl)$

$2(3 + 2 + 6)$

$2 \times 11 = 22$ cm²

13. (a) 2.7 unit increase at one term

total term = n

So, $2.7 \times n = 54$

$n = 20$

14. (c) $\frac{5+4\sqrt{3}\times(3-2\sqrt{3})}{3+2\sqrt{3}\times(3-2\sqrt{3})}$

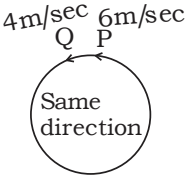
$\frac{15-10\sqrt{3}+12\sqrt{3}-24}{9-12}$

$= \frac{-9+2\sqrt{3}}{-3} = \frac{-9}{-3} + \frac{2\sqrt{3}}{-3}$

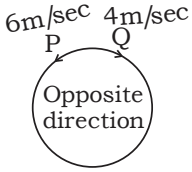
$3 - \frac{2}{\sqrt{3}} = a - \frac{b}{\sqrt{3}}$

So, a = 3, b = 2 then a + b = 3 + 2 = 5

15. (b) Concept:-



No. of meeting points = ?



No. of meeting points = ?

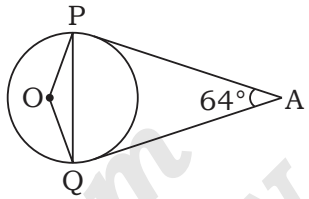
P : Q	P : Q
Speed 6 : 4	Speed 6 : 4
3 : 2	3 : 2
n = 3 – 2 = 1	n = 3 + 2 = 5

Now ATQ,

I case	II case	III case	IV case	V case
P : Q	P : Q	P : Q	P : Q	P : Q
6 : 1	6 : 2	6 : 3	6 : 4	6 : 5
6–1=5	3 : 1	2 : 1	3 : 2	6–5=1
	3–1=2	2–1=1	3–2=1	

Difference = 2 satisfied in only IInd case when we take Q = 2 m/s

16. (a)



$\angle OQP = \frac{\angle PAQ}{2} = \frac{64°}{2} = 32°$

17. (a) By deviation:-

Data	2	:	3
P/L	–35%		x%
	–70%		+70%

$\frac{70\%}{2} = 35\%$

$\frac{70}{3} = 23\frac{1}{3}\%$

18. (c) $4a - \frac{1}{3a} = 8$

$12a^2 - 1 = 24a$

$12a^2 = 24a + 1$

Now,

$\frac{4a^2}{24a+1+8a^2} \Rightarrow \frac{4a^2}{12a^2+8a^2} \Rightarrow \frac{4a^2}{20a^2} = \frac{1}{5}$

19. (a) $x \times \frac{72}{100} \times \frac{135}{100} = 1215$

x = Rs.1250

20. (d) M : W

2 : 1

90% 10%

9 : 1

3 unit = V

Added 7 unit

then, 7 unit = $\frac{V}{3} \times 7 = \frac{7}{3}V$

21. (d) $8000 \xrightarrow[r\%]{2\text{ year}} 10400$

Interest = 2400

New rate = (r + 5%) means extra 5% in 2 years.

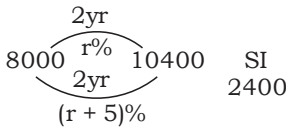
So, $8000 \times \frac{10}{100} = 800$

then, 2400 + 800 = 3200

Alternate Method:-

We know, SI% = RT%

ATQ,



Time is constant (2 year)

then, increase interest in 2 year

$= 8000 \times \frac{10}{100} = 800$

total interest = 2400 + 800 = 3200

22. (b)

	D		U
Time →	5	:	8
Speed →	8	:	5

Speed of boat in still water = $\frac{8+5}{2} = \frac{13}{2}$ unit

Speed of stream = $\frac{8-5}{2} = \frac{3}{2}$ unit

$\frac{3}{2}$ unit = 6unit

1 unit = $\frac{6 \times 2}{3} = 4$

then, $\frac{13}{2}$ unit = $\frac{13}{2} \times 4 = 26$ km/h

23. (d) $3\alpha + \alpha - 22 = 90°$

$4\alpha = 112$

$\alpha = 28°$

24. (d) 20% ↓ = $\frac{-1}{5}$

IIT madras = $5x$

IIT bombay = $4x$

$430 + 350 + 4x + 5x + 400 = 2080$

$9x = 2080 - 1180$

$x = \frac{900}{9} = 100$

Hence, $4x = 4 \times 100 = 400$

25. (a) $n = \left(\frac{R}{r}\right)^3$

$= \frac{9 \times 9 \times 9}{3 \times 3 \times 3} = 27$

1. If $15\sqrt{n} = \sqrt{704} + \sqrt{539}$, then the value of n is:

$15\sqrt{n} = \sqrt{704} + \sqrt{539}$ (a) 7 (b) 13 (c) 11 (d) 15

2. If the difference between the compound interest and simple interest on a certain sum of money for 3 years at the rate of 4% per annum is Rs.76, then what is the sum?

SSC CHSL 04/08/2023 Shift-01

(a) Rs.16,725 (b) Rs.12,925 (c) Rs.15,625 (d) Rs.18,825

3. What is the value of 13 × 12 + 12 × 11 – 14 × 15 – 9 × 13 + 19 × 15?

SSC GD 22/02/2024 (Shift-03)

(a) 246 (b) 146 (c) 546 (d) 346

4. The price of some wooden furniture increases by 65% when it passes through three hands. If the first and second sellers made a profit of 20% and 25%, respectively, then find the profit percentage of the third seller.

SSC CGL 02/12/2022 (Shift-03)

(a) 10% (b) 12.5% (c) 16% (d) 8%

5. If O is the orthocentre of triangle ABC and ∠AOC = 78°, the measure of ∠ABC is:

(a) 92° (b) 96° (c) 102° (d) 108°

6. A pipe can fill a tank in 20 minutes and another pipe can fill a tank in 30 minutes. Pipe A is opened for half of the time and pipe A and B are opened for the other half. How long will it take to fill the tank?

(a) 25 minutes (b) 20 minutes (c) 15 minutes (d) 16 minutes

7. If $p - \frac{1}{p} = 8$, then what is the value of $\frac{p^{10} - p^4}{p^7}$.

$p - \frac{1}{p} = 8$ $\frac{p^{10} - p^4}{p^7}$ (a) 540 (b) 536 (c) 530 (d) 528

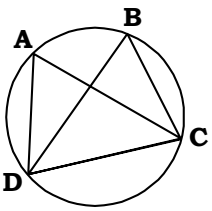
8. Average of 12 numbers is 60. If 12 is subtracted from the first five numbers and 10 is added in the next seven numbers, then what will be the new average?

SSC GD 22/02/2024 (Shift-03)

(a) 60.83 (b) 59.25 (c) 61.83 (d) 59.75

9. For the figure given below, ∠DBC = 39° and ∠ADC = 41° then find ∠ACD.

∠DBC = 39° ∠ADC = 41° ∠ACD



(a) 80° (b) 100° (c) 120° (d) 140°

10. If a + b + c = 6 and $a^3 + b^3 + c^3 = 36$ then, find value of $\frac{(a+b)(b+c)(c+a)}{(a+b)+(b+c)+(c+a)}$

;fn a + b + c = 6 vkSj $a^3 + b^3 + c^3 = 36$ gS rks

$\frac{(a+b)(b+c)(c+a)}{(a+b)+(b+c)+(c+a)}$ dk eku Kkr dhft,A

(a) 5 (b) 6
(c) 7 (d) 8

11. The angle of elevation from a point A to the top of tower is 30° if the distance between point A and foot of the tower is 30 m then find the height of tower.

,d fcanq A ls ehukj ds 'kh"kZ dk mUu;u dks.k 30° gS ;fn fcanq A vkSj ehukj ds ikn ds chp dh nwjh 30 m gS rks ehukj dh Å¡pkbZ Kkr dhft,A

(a) 60 m (b) $30\sqrt{3}$ m
(c) $10\sqrt{3}$ m (d) $20\sqrt{3}$ m

12. If a train 130 m long takes $6\frac{1}{2}$ seconds to cross a man who is walking at 12 km/h in the same direction in which the train going, then the speed of the train (in km/h) is:

;fn 130 eh- yach ,d Vªsu ,d O;fDr dks ikj djus esa $6\frac{1}{2}$ lsdaM dk le; ysrh gS] tks 12 fdeh-@?kaVk dh pky ls Vªsu dh fn'kk esa gh py jgk gS] rks Vªsu dh pky (fdeh-@?kaVk esa) gS%

SSC CHSL 04/08/2023 (Shift-02)

(a) 84 (b) 64
(c) 48 (d) 74

13. How many natural numbers are there which give a remainder of 8 when 620 is divided by these natural numbers?

,slh fdruh izkd`r la[;k,¡ gSa] ftuls 620 dks foHkkftr djus ij 'ks"kQy 8 izkIr gksrk gS\

(a) 15
(b) 13
(c) 14
(d) 12

14. In a hotel, there are 120 staff members. Their average weight is 62.5 kg. When one of the staff members leaves the hotel, the average weight is reduced by 250 g. Find the weight of the staff member who left the hotel.

,d gksVy esa 120 deZpkjh lnL; gSaA mudk vkSlr otu 62.5 kg gSA tc ,d deZpkjh lnL; gksVy NksM+ nsrk gS] rks vkSlr otu 250 g de gks tkrk gSA gksVy NksM+us okys deZpkjh lnL; dk otu Kkr dhft,A

SSC CGL 09/12/2022 (Shift-01)

(a) 64.25 kg (b) 78.75 kg
(c) 90.50 kg (d) 92.25 kg

15. What is the value of $\frac{2}{1\times3}+\frac{2}{3\times5}+\frac{2}{5\times7}+\ldots\frac{2}{99\times101}$?

$\frac{2}{1\times3}+\frac{2}{3\times5}+\frac{2}{5\times7}+\ldots\frac{2}{99\times101}$ dk eku D;k gS\

SSC GD 22/02/2024 (Shift-04)

(a) 100/101 (b) 99/101
(c) 101/102 (d) 99/100

16. In January 2022, Kriti paid an EMI, which was 22% of her monthly salary. She spent the remaining salary on shopping of groceries and clothes in the ratio 7: 5. She spent Rs. 18,200 on shopping of clothes. If in February 2022, her salary increased by 16%, then what was her salary (in Rs) in February?

tuojh 2022 esa] d`fr us ,d EMI dk Hkqxrku fd;k] tks mlds ekfld osru dk 22% FkkA mlus 'ks"k osru dks 7 : 5 ds vuqikr esa fdjkuk vkSj diM+ksa dh [kjhnkjh ij [kpZ fd;kA mlus diM+ksa dh [kjhnkjh ij 18,200 #- [kpZ fd,A ;fn Qjojh 2022 esa mlds osru esa 16% dh o`f) gqbZ] rks Qjojh esa mldk osru (#- esa) fdruk Fkk\

SSC CGL 24/07/2023 (Shift-01)

(a) Rs.66,350 (b) Rs.68,520
(c) Rs.70,250 (d) Rs.64,960

17. If cosA + $\cos^2A$ = 1, then find the value of $\sin^{12}A + 3\sin^{10}A + 3\sin^8A + \sin^6A + 1$?

;fn cosA + $\cos^2A$ = 1 gS] rks $\sin^{12}A + 3\sin^{10}A + 3\sin^8A + \sin^6A + 1$ dk eku Kkr dhft,A

(a) 4 (b) 2
(c) 16 (d) 0

18. The company offers the following four types of successive dicounts on a computer which is listed at Rs 6000.

daiuh ,d daI;wVj ij fuEufyf[kr pkj izdkj dh Øekxr NwV iznku djrh gS ftldk vafdr ewY; 6000 #- gSA

(i) 25% and 15% (ii) 30% and 10%
(iii) 35% and 5% (iv) 20% and 20%

Which of these offers is best for a customer?

buesa ls dkSu lk izLrko xzkgd ds fy, lcls vPNk gS\

SSC CHSL 08/08/2023 Shift-01

(a) Fourth offer
(b) First offer
(c) Third offer
(d) Second offer

19. What will be the greatest number 32a78b, which is divisible by 3 but not divisible by 9? (Where a and b are single digit number).
र ,रॅह ,%ॅ़ार मं`˘ 32a78b˘ दे एॅ रॅच( हौचॅ म`हसॅ रह कखैठं˘ (ाटह़ एॅ ढ रॅहकखैठं˘ ए(ॅा(अॅरुम(˘6a वे ुा˘ b स्दटॅ ३चैीह˘ रमं`˘ (ाक्र

SSC CHSL 09/08/2023 Shift-02

(a) 324781 (b) 329787
(c) 326787 (d) 329784

20. An amount becomes double in 8 years on simple interest. In how many years would Rs.25,000 become Rs.1,00,000 with the same rate of interest?
रे ते ु ध˘ उं` म˘ ु ˘ स्द ु` के˘ ़ नपेॅह़लॅह` हाए़च(`हम` चि (क्रर लेएॅ उं` म˘ ु ˘ ु ˘ ध्ड़ै 777˘ 0 ॅहदचु` के˘ क़ाएह नपेॅह़लॅह़भै 77ै 777˘ 0 ॅह(ॅहम` स)च्ड़

SSC CGL 18/07/2023 (Shift-04)

(a) 32 years (b) 28 years
(c) 16 years (d) 24 years

21. The volume of a cubical shaped box is 4913 cm³. If length, breadth, and height of the box is increased by 1.5 cm, 2.5 cm, and 3 cm respectively, then what is the new volume of the box?
स्दॅ़` एॅ वे दे ु˘ दॅह,` णरॅ दे˘ वे ं ाएॅ ज्ञढभसॅ़` एॅ रह़ाचॅ (क्रं कॅ ,` णरॅ दचॅटमे शैं कृे1⁄4शी वे ु ा˘ . फ्रे शी कल्टे प्र भड़ॅ रह़ौचॅ ध्ड़ॅ रह़ॅचवे ु ा˘ सॅ रह़ॅच ,14शी म` चि(ौ˘ ाैह के़ू˘ ,` णरॅ दे˘ एं`˘ वे ं ाएॅ गं`˘ (ाअ

(a) 7315 cm³ (b) 7225 cm³
(c) 7115 cm³ (d) 7215 cm³

22. Wheat worth Rs.80 per kg and Rs.50 per kg is mixed with a third variety in the ratio 1 : 2 : 3 . If the mixture is worth Rs.75 per kg, then the price of the third variety per kg will be equal to:
़7˘ 0 ॅहं सकॅ क़)ॅखवे ु ा˘ इ7˘ 0 ॅहं सकॅ क़)ॅखदॅह)हछ दे ॅहभ˘ प्रॅ ध˘ प्रॅ सॅ दॅहवएॅ2 ा˘ लॅह़ाचु चॅक़ त्त्लॅ दचॅ)हछ दॅहरे लेॅ कटे ं`˘ म` ा˘ (क्रं कॅ क़ाठ ध˘ दे˘ लछं˘ ०इ 0 ॅहं सकॅ क़)ॅख(ा˘ ाॅहचु चॅक़ त्त्लॅ दॅह)हछदे˘ सकॅ क़)ॅखलछं˘ गं`˘ (हे अ

SSC CGL 07/12/2022 (Shift-01)

(a) Rs.95 /kg
(b) Rs.85 /kg
(c) Rs.80 /kg
(d) Rs.90 /kg

23. The given expression is equal to:

$$\frac{(1+\tan^2 A)}{\cos ec^2 A.\tan A}$$

$$\frac{(1+\tan^2 A)}{\cos ec^2 A.\tan A}$$ चॅ)शीरूमदॅ श्रदॅह,ु` ु˘ (प्र

SSC CHSL 03/08/2023 (Shift-03)

(a) $\sec^2 A$
(b) secA
(c) tanA
(d) $\tan^2 A$

24. In an election between two candidates, the defeated candidate secured 42% of the valid votes polled and lost the election by 7,68,400 votes. If 82,560 votes were declared invalid and 20% people did not cast their vote, then the invalid votes were what percentage (rounded off to 1 decimal place) of the votes which people did not cast?
`ॅहक्ष़ लचने ु`ॅहदॅह,चक़ॅ स्दॅ कृाे नॅ लैहॅ ु` क ा˘ क्ष़ लचने ु एॅह˘ %ॅह( ड़˘ नात˘ लाॅहदे˘ ज्ञध्जॅ ( कटॅ क़ ं`˘ वे ु ा˘ न(ै8ै ज्ञ77˘ लाॅहरॅहकृाे नॅ (ु˘)`क्रं कॅ ़ ध्ै इ87˘ लाॅह दे ॅहवलेडं˘ ़ ``हेॅा द ु˘ क ं`˘ )`˘ लैॅ वे ु ा˘ ध्7जॅ टे हे ह एॅहव ऐॅ ला˘ ए(ॅा%टै˘ ाॅहवलेडं˘ लाै˘ टे हेॅह्रे ु ए(ॅा%टॅह)स˘ लाॅहदॅहक़ाएॅह सक़ाॅ्र ा रु श्लटनॅ दह `˘ स्दॅ वक़ ादबॅ लेह़

SSC CGL 02/12/2022 (Shift-02)

(a) 10.6 % (b) 9.8 %
(c) 12.9 % (d) 6.8 %

25. Find the remainder when we divide $3x^4 - 2x^2 + 4x - 1$ is $2x - 1$.
$3x^4 - 2x^2 + 4x - 1$ दे ॅह $2x - 1$˘ रॅहकखेक ा˘ द ु एह ु˘ `ख्डु श्हे ़टॅ ते ा˘ दच्क़ स्क्र

SSC CGL 07/12/2022 (Shift-04)

(a) 4
(b) 3
(c) $\frac{11}{16}$
(d) $\frac{15}{16}$

ANSWER KEY

1.(c)	2.(c)	3.(a)	4.(a)	5.(c)	6.(c)	7.(b)	8.(a)	9.(b)	10.(a)
11.(c)	12.(a)	13.(b)	14.(d)	15.(a)	16.(d)	17.(b)	18.(c)	19.(d)	20.(d)
21.(d)	22.(d)	23.(c)	24.(d)	25.(c)					

SOLUTIONS

1. (c) $15\sqrt{n} = \sqrt{704} + \sqrt{539}$

$15\sqrt{n} = \sqrt{11\times64} + \sqrt{11\times49}$

$15\sqrt{n} = 8\sqrt{11} + 7\sqrt{11}$

$15\sqrt{n} = 15\sqrt{11}$

n = 11

2. (c) 3 year $\Rightarrow$ CI – SI = $P\left(\frac{R}{100}\right)^2\left(\frac{300+R}{100}\right)$

ATQ,

$76 = P\times\frac{16}{10000}\times\frac{304}{100}$

P = Rs.15625

Alternate Method:

CI of 3 year at 4% per annum = 12.4864%

SI of 3 year at 4% per annum = 12%

Difference = 12.4864% – 12% = 0.4864%

$100\% = \frac{76}{0.4864\%}\times100\% = Rs.15625$

3. (a) By digital sum

13 × 12 + 12 × 11 – 14 × 15 – 9 × 13 + 19 × 15

4 × 3 + 3 × 2 – 5 × 6 – 9 + 1 × 6

= 3 + 6 – 3 – 9 + 6

digital sum = 3

4. (a) I $\rightarrow$ 5 : 6

II $\rightarrow$ 4 : 5

III

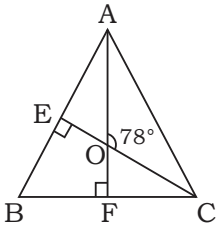
100 : 165

III $\Rightarrow$ 100 × 6 × 5 : 165 × 5 × 4

$\Rightarrow$ 10 : 11

Profit % of third seller = $\frac{1}{10}\times100\% = 10\%$

5. (c)



The meeting point of all perpendicular of a triangle is called orthocentre.

∠AOC = ∠EOF = 78° (vertically opposite angle)

We know sum of angles of a quadrilateral = 360°

then ∠ABC = (180° – 78°) = 102°

6. (c) Time Eff.

A $\rightarrow$ 20 — 3

B $\rightarrow$ 30 — 2

60

A A + B

t

By option (c) $A\rightarrow3\times15 = 45$

$B\rightarrow2\times7.5 = \frac{15}{60}$ Satisfy

7. (b) $\frac{P^{10}-P^4}{P^7}$

$\frac{P^{10}}{P^7}-\frac{P^4}{P^7} \Rightarrow P^3-\frac{1}{P^3}$

ATQ,

Given, $P-\frac{1}{P} = 8$

$\Rightarrow \left(p-\frac{1}{p}\right)^3 = p^3-\frac{1}{p^3}-3\left(p-\frac{1}{p}\right)$

$\Rightarrow 8^3 = p^3-\frac{1}{p^3}-3(8)$

$\Rightarrow 8^3 + 3(8) = 512 + 24 = 536$

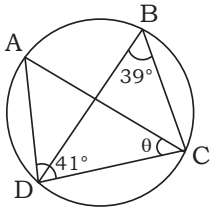
8. (a) By deviation:- 5 7

–12 +10

Overall deviation = $\frac{-60+70}{12} = \frac{10}{12} = 0.83$

then, New avg. = 60 + 0.83 = 60.83

9. (b)



By same chord

∠DBC = ∠DAC = 39°

In ΔDAC:- ∠DAC + ∠ADC = 39 + 41 = 80°

So, ∠ACD = 180° – 80° = 100°

10. (a) Let, a = 3, b = 2, c = 1

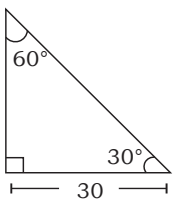
$a + b + c = 6$ $\quad a^3 + b^3 + c^3 = 36$

$3 + 2 + 1 = 6$ $\quad 27 + 8 + 1 = 36$

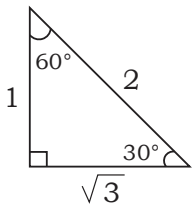
$$\frac{(a+b)(b+c)(c+a)}{(a+b)+(b+c)+(c+a)}$$

$$\frac{5\times3\times4}{5+3+4} = \frac{60}{12} = 5$$

11. (c)



By angle

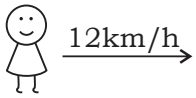


$\sqrt{3}$ unit = 30

1 unit = $\frac{30}{\sqrt{3}}$

$$\frac{30\times\sqrt{3}}{\sqrt{3}\times\sqrt{3}} = \frac{30\sqrt{3}}{3} = 10\sqrt{3} \text{ m}$$

12. (a) $\xrightarrow[x \text{ km/h}]{130\text{m}}$ $\quad t = \frac{D}{S}$



$$\frac{13}{2} = \frac{130}{(x-12)\times\frac{5}{18}}$$

$$\frac{13}{2} = \frac{130\times18}{(x-12)\times5}$$

$x - 12 = 72$

$x = 84$

Alternate Method:-

Relative speed (Train – man) = $\frac{130}{\frac{13}{2}}$

$= \frac{130\times2}{13} = 20$ m/s

in km/h = $20 \times \frac{18}{5} = 72$ km/h

speed of train = 12 + 72 = 84 km/h

13. (b) $\frac{620}{d} \Rightarrow 8$ remainder

620 – 8 = 612 We check factor of 612

$612 = 2^2 \times 3^2 \times 17^1$

= (2 + 1) (2 + 1) (1 + 1)

Total factor = 3 × 3 × 2 = 18

But value of d not be less than 8 so, we can't take 1, 2, 3, 4, 6 now, we have 13 values

14. (d) **1st Method:**

Member	Average	Total weight	
120	62.5	7500	92.25
119	62.25	7407.75	

So. weight of staff members who left

= 7500 – 7407.75 = 92.25 kg

2nd method:

$\frac{250}{1000} = \frac{1}{4}$kg

Avg. weight of all persons decreased by $\frac{1}{4}$ kg because one person left the hotel then, weight of that person

$\left(62.25 + \frac{120}{4}\right)$kg = 92.25 kg

15. (a) $\frac{2}{1\times3} + \frac{2}{3\times5} + \frac{2}{5\times7} + \ldots\ldots \frac{2}{99\times101}$

$$2\underbrace{\left[\frac{1}{1\times3} + \frac{1}{3\times5} + \frac{1}{5\times7} + \ldots\ldots \frac{1}{99\times101}\right]}_{\text{Formula} = \frac{1}{\text{diff.}}[\text{First} - \text{Last}]}$$

then, $2\times\frac{1}{2}\left[\frac{1}{1} - \frac{1}{101}\right]$

$\frac{1}{1} - \frac{1}{101} = \frac{100}{101}$

16. (d)

Jan 100% → Income of feb = $100 \times \frac{116}{100} = 116\%$

EMI 22% | 78%

G : C

7 : 5

12 unit = 78%

1 unit = $\frac{78\%}{12} = 6.5\%$

$7 \times 6.5\%$: $5 \times 6.5\%$

$5 \times 6.5\% \rightarrow 18200$

$116\% = \frac{18200}{5\times6.5\%}\times116\%$ = Rs.64960

17. (b) $\cos A + \cos^2 A = 1$

$\cos A = (1 - \cos^2 A)$

$\cos A = \sin^2 A$

$\sin^{12}A + 3\sin^{10}A + 3\sin^8 A + \sin^6 A + 1$

$\cos^6 A + 3\cos^5 A + 3\sin^4 A + \sin^6 A$

By $(a^2 + b^2)^3 = (a^2)^3 + (b^2)^3 + 3(a^2)^2 \times b^2 + 3a^2(b^2)^2$

$(\sin^2 A + \cos^2 A)^3 + 1$

1 + 1 = 2

18. (c) (i) $25 + 15 - \frac{25\times15}{100} = 36.25\%$

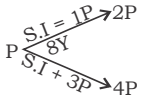
(ii) $30 + 10 - \frac{30\times10}{100} = 37\%$

(iii) $35 + 5 - \frac{35\times5}{100} = 38.25\%$

(iv) $20 + 20 - \frac{20\times20}{100} = 36\%$

19. (d) By divisibility Rule → 3 and 9
check option
329784 is the greater number which is divisible by 3 but not divisible by 9.

20. (d)



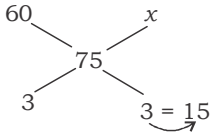
1P → 8 year
3P → 8 × 3 = 24 year

21. (d) $a^3 = 4913$
$a = \sqrt[3]{4913}$
$a = 17$
$l = 17 + 1.5 = 18.5$
$b = 17 + 2.5 = 19.5$
$h = 17 + 3 = 20$
New volume of box = $l \times b \times h$
$18.5 \times 19.5 \times 20$
By digital sum → 6
Option (d) is satisfied ⇒ 7215

22. (d) Avg price per kg of two types of wheat.

$$\frac{(80\times1)+(50\times2)}{3} = \frac{180}{3} = \text{Rs.60 per kg}$$

Price of third type wheat per kg
by aligation



Given 1 unit = 5
then value of x = (75 + 15)
90 per kg

23. (c) $\dfrac{(1+\tan^2 A)}{\cos ec2^A.\tan A}$

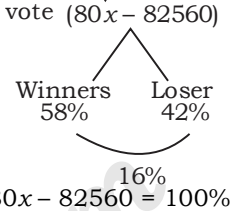
$$\frac{\sec^2 A}{\cos ec^2 A \times \tan A}$$

$$\frac{\sin^2 A}{\cos^2 A} \times \frac{1}{\tan A}$$

$$\tan^2 A \times \frac{1}{\tan A}$$

$\tan A$

24. (d)
Total vote → $100x$
$-20x$ ↓
Cast vote $80x$
Invalid vote -82560 ↓
Valid vote $(80x - 82560)$



Let: $80x - 82560 = 100\%$
$16\% = 768400$

$$100\% = \frac{768400}{16\%} = 4802500$$

then $80x - 82560 = 4802500$
$80x = 4802500 + 82560$
$80x = 4885060$

So, $20x = \dfrac{4885060}{80x} = 1221265$

Hence, $\dfrac{85560}{1221265} \times 100\% = 6.8\%$

25. (c) $2x - 1 = 0$

$$x = \frac{1}{2}$$

then, $3x^4 - 2x^2 + 4x - 1$

$$3 \times \frac{1}{16} - 2 \times \frac{1}{4} + 4 \times \frac{1}{2} - 1$$

$$\frac{3-8+32-16}{16} = \frac{11}{16}$$

1. What is the remainder when 4^{999} is divided by 7?

4^{999} `` हर7ॅ हर्किदे क्याएं गझेहरगं चेहरु टं 8`` (हे स

SSC Phase XI 27/06/2023 (Shift-02)

(a) 2 (b) 4
(c) 1 (d) 3

2. If $x = 14$, $y = 15$ and $z = 17$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is:

ॅ कॅ $x = 14$, $y = 15$ ने ग़ा $z = 17$ (ग्र ऐेह $x^3 + y^3 + z^3 - 3xyz$ `` ी अंज़े एं ज्ञस।

SSC Phase XI 28/06/2023 (Shift-02)

(a) 333 (b) 322
(c) 312 (d) 222

3. The value of/ `` ी अं(ा

$$\left[\frac{(0.253 \times 0.253 - 0.253 \times 0.067 + 0.067 \times 0.06)}{(0.253 \times 0.253 \times 0.253 + 0.067 \times 0.067 \times 0.067)}\right]$$

CISF HC 31/10/2023 (Shift-02)

(a) 64 (b) 1.128
(c) 3.125 (d) 1

4. Average of 9 consecutive odd numbers is 27. If the previous and next odd number to these 9 odd numbers are also included, then what will be me new average?

कृ की य?ॅ कीति ॅ र्ब ने हं`` नॅ ा एं ग्व ( ाॅ कॅ 6अं कृ कीति ॅ र्ब ने हं जक, टजने ग़ा न )टजकीति ॅ र्ब`` ह देजचे कैट ॅ ग़ क्ष`` लेर ऐेहअं ॅ नॅ ा एं 8`` (हे स

SSC CHSL 09/03/2023 (Shift-04)

(a) 32 (b) 28
(c) 29 (d) 27

5. A trader marked a table at Rs.37,062, and sold it allowing a 33% discount. If his profit was 42%, then the cost price (in Rs) of the table was:

र ॅ र्ॅ रे गज अेहर ॅ ा हं रगं 8वप02ॅ 5रॅ ह`` ाि न क्ते एं कॅ`` ने ग़ा ॅ ह88ॅ ॅ ज, ड्ड ह ग़ यहॅ कॅ । ॅ कॅ ॅ `` ट दें ल्लाॅ छे पं ऐेही हं`` र्ब ॅ ाि प्र5रॅ ह ा हं 8`` छे स

SSC Phase XI 27/06/2023 (Shift-04)

(a) 15,487 (b) 16,487
(c) 17,487 (d) 13,487

6. A sum of money was borrowed by K for 4 years at the rate of 16% per annum simple interest. If the total amount paid at the end of four years was Rs.37310, then what is the sum that was borrowed by him?

72लॅ न्व्व ातेंखि खे गॅ 6ॅ लॅ ज गं हK . गं ॅक्रीतिह ॅ हक्रर ख्ओ कें`` बते कॅ``)`ाॅ क 1 गं तिह ह नएं ाहिदेअेएअं ज)ध्खं डॅ ख्ओ कें 8व870ॅ 5रॅ ह(ग़ ऐेह ॅ ह. गं बते कॅ`` )`` ख्ओ कें क एअं (हस

(a) Rs.22750 (b) Rs.14560
(c) Rs.22500 (d) Rs.26250

7. Each one of five men independently can complete a work in 20 days. The work is started by one person. Next day one more person joins and every next day one more person joins. From the fifth day, five persons continued working as a team. In how many days, will the work be completed?

रे गं ा है हरध्ह ॅ र्ॅ क्याएं, ाएं क्ष्रॅ हर ॅ `` ख ह ग0ॅ क अं ा हरें गं ॅ एं ( ा र ॅ र्ॅ क्याएं . गं `` ख चेह ॅ कॅ`` ले ऐं ( ा न )टहकअं र ॅ ने ग़ा र्ॅ क्याएं `` ख गझें हक्रर चे कैट (हें (ा ने ग़ा रध्ह ॅ न)टहकअ र ॅ ने ग़ा र्ॅ क्याएं `` ख गझें हक्रर चे कैट ( हें (ा रे ग़ हिकअं हइजें हक्ष्रॅ ा है रे गं र्ॅ क्याएं `` ख गझे ले गजगडे एंह(ग़ा (`` खंक एअंहक अं ही हरें (हे स

SSC CGL 17/08/2021(Shift- 03)

(a) 2 (b) 6
(c) 3 (d) 5

8. In a year, the ratio between the hit movies and flop movies was 5 : 4 and difference between them is X. If 3Y less number of movies had released and 4Y less number of movies hit, the ratio of hit movies and flop movies would have been 1 : 5. Find the value of (X – Y).

र ॅ तिखि हं कइ कु मीं हने ग़ा डट. र कु मीं हं हयज`` नअे एं 6 ें क्रीछें एछें . अं हयज`` नएगं X छे ाॅ क 3Yॅ ा ॅ र्ब ॅ ा है कु मीं हक्ट जें (हजने ग़ा 4Yॅ ा कु मीं हकइ (हज़ें ऐेहकइ कु मीं हने ग़ा डट. र कु मीं हं नअे एं (हें 7 ें 6 (हें ा (X – Y)ॅ `` ी अंज़े एं ज्ञहें ह

(a) 10 (b) 5
(c) 15 (d) 0

9. A shopkeeper is purchasing goods from a wholesaler. The wholesaler is selling 1265 units of goods to the shopkeeper after gaining the sale price of 165 units of goods. What is the gain percentage of the wholesaler?

स ˘ ˙3 अ ॅ ग छेह ˘ ॅ ˘ र गजै ˙हे ˘ ी ॲ रूगज ˘ ग(˘ (ा छेह ˘ ॅ ˘ र गजी ट ˙ ज726 ६ ˘ ध्खेह ˙हर्कि ˘ ी ॅ ˘ ˘ ह यगेयग ˙ ˘ ˘ ट दें न क्ताख्र ˙ गएह(ॅ ी ट ˙ ज7ॅ26 ६ ˘ ध्खेम ˙3 अ ॅ ग ˙ ˘हयह ऐ ˙ (ा छेह ˘ ॅ ˘ र गज ˘ ˘ ट दें न्क्चुए ज्ञे ऍ ˙ ज्कास।

SSC Phase XI 27/06/2023 (Shift-02)

(a) 15% (b) 20%
(c) 25% (d) 18%

10. A solid sphere has a surface area of 616 cm^2. This sphere is now cut into two hemispheres. What is the total surface area of one of the hemispheres?

स ˘ धेह ˘)ह्रह ˘ ˘ रक्तज ˘ रूेहरु ट 272 ˙ हेजं (ा ६)ह्रह ˘ ह ˘ ह)हे ? ˘ह्रप्रन ? खेहे ा ी ह ˘ इ ˘ लेऐ ˙ (ा क ˙ जस ˘)हे ? ˘ ख ˙ ˙ स्रहेखक्तज ˘ रूेहरु ट ज्ञे ऍ ˙ ग्ग्रह

SSC Phase XI 28/06/2023 (Shift-01)

(a) 440 cm^2 (b) 462 cm^2
(c) 452 cm^2 (d) 390 cm^2

11. UV and SW are two medians of a triangle ΔSTU, which intersect each other at right angle at point C. Find the length of UW, if lengths of UV and SW are 72 cm and 42 cm respectively.

UV न ा ग SW स ˘ ΔSTU ˙ ज ˘ ही क ˘ ˘ (म लेहरु ˘ %ग्रह ˘ हे ी ˘ हें रग क्ताम3C रग न्क्चु ,क्रऍ ˙ गएज(म ˙ क ˙ UV न ा ग SW ˙ जटये ध्खाी चें ाक cm न ा ग क्त cm (म ऐहUW ˙ जटव्हे ध्खेु ऍ ˙ ज्कास।

(a) 45 cm. (b) 40 cm.
(c) 50 cm. (d) 42 cm.

12. Suman travels from place X to Y and Rekha travels from Y to X, simultaneously. After meeting on the way. Suman and Rekha reach Y and X, in 3 hours 12 minutes and 1 hour 48 minutes, respectively. If the speed of Rekha is 9 km/h. then the speed (in km/h) of Suman is:

स ˘ (जै ी ˘ रग ˙ 3ॲ छेॲ X ˙ हY ˙ हक्र स ˘ 1टएज (ान ा ग ह्रे ˘ , छेॲ Y ˙ हX ˙ हक्र स ˘ 1टएज(ा गे एही ह्र कैटॲह ˙ हये पं ˙ 3ॲ न ा ग ह्रे ˘ , छेॲ Y न ा ग X रग की चें 8 रेह्रे ˘ 7ॅ कैअह न ा ग स ˘ रेह्रे क्त कैअह ाह्र र(ह्रएज(ा ˙ क ˙ ह्रे ˘ ˙ ज ा ट कृ की जेरेह्रे ˘ (म ऐ ह ˙ 3ॲ ˙ जा ट प्रकी जेरेह्रे ाह ज्ञे ऍ ˙ ग्ग्रह

SSC CGL 18/08/2021 (Shift- 02)

(a) $7\frac{1}{2}$ (b) 6
(c) 8 (d) $6\frac{3}{4}$

13. The perimeter of a parallelogram is 48 cm. If the height of the parallelogram is 6 cm and the length of the adjacent side is 8 cm. find its area.

स ˘ ˘ ी स्रुग 1 एहेज्ञ ˙ ˘ ˘ रक्ती र क्र ˙ हेज(ा ˘ क ˙ ी स्रुग 1 एहेज्ञ ˙ जण्ड ध्खे ˙ हेज(ान ॉ न ˙ छ्रदेजे ˙ जटये ध्ख ˘ ˙ हेज(ा ६ ˘ ˘ रूेहरु ट ज्ञे ऍ ˙ ज्कां ह

SSC CHSL 03/08/2023 (Shift-01)

(a) 90 cm^2 (b) 80 cm^2
(c) 84 cm^2 (d) 96 cm^2

14. A TV manufacturer sells an item to a wholesale dealer at a profit of 8%. The wholesaler sells the same to a retailer at a profit of 10%. The retailer in turn sells it to a customer for Rs.11,050 thereby earning a profit of 15%. The cost price of the manufacturer is: (Consider integral part only)

स ˘ TV ˘ क्ती खें क ˙ जर्रि एं3 ˘ ˘ हछेह ˘ ॅ ˘ र गज ˙ ˘ ह-ल ˘ हट दें रग यह ऐ ˘ (ा छेह ˘ ॅ ˘ र गज ˙ हे70ल ˘ हट दे रग स ˘ रू3ग किक्रे ˘ ˘ हयह ऐ ˘ (ा रू3ग किक्रे ˘ य टह ी ह्रै ˘ ह)ए ˘ ˘ ˘ हे77प्0 60 5र ˘ ही ह्रयह ऐ ˘ (ा का ˙ हे76ल ˘ ˘ ट दें (हे ˘ (ा की खें ˘ ˘ क ˘ ी ॅ ˘ क एअें (सं प्र हिट रॅख ख ˘ ˘ ी ही ॲ टह्र

SSC Phase XI 27/06/2023 (Shift-02)

(a) Rs. 8,000 (b) Rs. 8,088
(c) Rs. 7,088 (d) Rs. 8,888

15. If $5x + \frac{1}{3x} = 4$, find $9x^2 + \frac{1}{25x^2}$

˘ क ˙ $5x + \frac{1}{3x} = 4$ ˘ (म ऐ ह $9x^2 + \frac{1}{25x^2}$ ˘ ज्ञे ऍ ˙ ज्कास।

(a) $\frac{144}{125}$ (b) $\frac{119}{25}$
(c) $\frac{174}{125}$ (d) $\frac{114}{25}$

16. At present, Ritika's age is 3 times the age of Vipul. After 7 years, Ritika will be 2 times as old as Vipul. What is the present age of Ritika (in years)?

ि एखिअं ी ह्रब क्ष ˘ ˘ ˙ ˙ जन ˘ ˘ 3करिठ ˙ जन ˘ ˘ 3 ज8)अ (ा व ि तिख्ये ˘ ब क्ष ˘ ˘ ˙ जन ˘ ˘ 3करिठ ˙ जन ˘ ˘ 3 ज ˘ हे3अज(हेज ब क्ष ˘ ˘ ˙ ज ि एखिअ न ˘ ˘ 3प्रति ती ही ाह ज्ञे ए ˘ ग्ग्रह

SSC Phase XI 27/06/2023 (Shift-04)

(a) 42 (b) 35
(c) 53 (d) 21

17. If A and B be the centres of two circles and such that the distance between the centres of the respective circles is greater than the sum of the radius of both the circles, then find the number of common tangents.

ˈ कॅ A नेॉ B ˋहिॉबिह्ब्रं हं ह्रक है ˇ ॅ ˋ गं(ॅह्रक ˆ यक्ष्र एॅ ब्रिहं हं ह्रेक्र हयज ˙ ज प्र्ज ह्रेहि्रहं जकेˇ ने ह्र ˙ हॅ ˋ हइ्ु टॅ ˆ हनक्ड ˇ (ह्रंएेहू दें क्षर्ड, रचेंयक्षेने ह्र ˙ जै र्प ˇ ज्रे एॅ ˙ ज्ञानस।

(a) 4 (b) 3

(c) 0 (d) 1

18. In an election between two candidates, 84 votes were declared as invalid. The winning candidate secures 62% of the valid votes and wins by 96 votes. The number of votes polled is:

ˋहॅ ह्रजिं गॅह्र ˋहयज (ॅ 1 अिं ीह्र -क्रीएॅ नष्ठि रेह्रहेएॅ कनॅ)ॅर्पा लव्रअहिं टॅ ˇ ह्रजिं ग ˙ ˋह 2 म्ॅ ष्ठि ीएॅ ॅ र्पॅ (ह्रह(मने गॅ ष्ठि(क्रूं ीएेह्रे हलजॅ लेएॅ (ॅ ˆ टह)रॅ ीएेह्र जै र्प ˇ ज्रेएॅ ˙ ज्ञानस।

SSC Phase XI 28/06/2023 (Shift-01)

(a) 424 (b) 543

(c) 641 (d) 484

19. Find the value of/क्षह्रक्ष केएॅ ˙ ˋ ीअंज्रेएॅ ˙ ज्ञानस।

$$\frac{(\sin\theta + \tan\theta)(\cos\theta + \cot\theta)}{1 + \sin\theta + \cos\theta + \sin\theta\cos\theta}$$

(a) 1 (b) 3

(c) 0 (d) 2

20. The speed of a bus without stoppages is 40 km/h and with stoppages is 32 km/h. How many minutes per hour does the bus stop?

रॅ ˇ यै ˇ ˙ जॅ ीटॅ क्षअॅ ध(गॅ ष्ठि ˙ हक्र्ट कंीजिंरेह्रे एछेॅ ध(गॅ ष्ठि ˇ ˋ हैॅ ह्छेॅ ीटॅ 8म्ॅ कंीजिंरेह्रेॅ (ीयै रष्टि हॅ रेह्रहीह्रक एअहकेअॅ ˇ हक्षरॅ ध(गएज(ह्र

SSC MTS 08/10/2021 (Shift-02)

(a) 18 (b) 15

(c) 12 (d) 16

21. if $9^{x+2} = 240 + 9^{x}$ then Find the value of $(16x^{2})^{x}$

ˈ कॅ $9^{x+2} = 240 + 9^{x}$ (ॅ ह्रएेह $(16x^{2})^{x}$ ˙ ˋ ी अं(ह्र

CISF HC 30/10/2023 (Shift-03)

(a) 9 (b) 4

(c) 1 (d) 2

22. If $\sqrt{1849} + \sqrt{0.0608 + x} = 43.25$, find the value of x.

ˈ कॅ $\sqrt{1849} + \sqrt{0.0608 + x} = 43.25$ (ॅ ह्रएेह x ˙ ˋ ीअंज्रेएॅ ˙ ज्ञानस।

CISF HC 31/10/2023 (Shift-01)

(a) 0.0017 (b) 72.17

(c) 1729 (d) 1

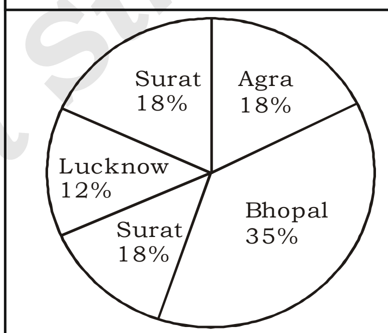
23. Study the given pie chart and answer the question that follows.

कनॅ)ॅ रे ह्रेखा इंखें ˋ नठ ˈ अॅ ˙ गॅ ह्रने गॅ क्षह्रक्ष कएॅ ॅ च्क्ष ˙ ˋ ॅ ढेगॅ ह्र

The pie chart represent the percentage of magazines users in five different cities of India.

रे ह्रेखा इंखें गएॅ ˙ ˋ हरे गॅ नट)श्र ट) चे(गॅहीहरकें ˋ ॅ रॅ ˋ हं ऐसेंह्र ˋ हन्ह्रचएॅ ˙ ˋ ह चेहं (ह्र

Total number of users = 2,50,000



What is the central angle made by Bhopal city in the pie chart?

रे ह्रेखा इंखेंह्रदे हे टॅ चे(गॅ . गॅ यअॅ ˋ) ˋ ˙ ह्रजॅ ˙ ˋ हे ॅ ˋ (ह्र

SSC CHSL 03/08/2023 (Shift-03)

(a) 128° (b) 126°

(c) 122° (d) 124°

24. The following gives marks obtained by six students in five different examinations. The maximum numbers in each subject.

क्षह्रक्ष कएॅ ीह्र,(, ः ह्र गॅ रे गॅ नट)श्र ट) रगजे ने ह्र ीह्र ॅ र्पॅ नमॅ कनॅ)ॅ (ह्र(गॅ कर्ते ˇ ीहै यै ˋ हॅ ˙ ˋ अ्रगॅ(ी

Students	Subject (Maximum Marks)				
	English (100)	Hindi (100)	Mathematics (150)	Chemistry (60)	Physics (60)
A	82	54	101	43	60
B	75	48	126	35	52
C	66	68	150	22	48
D	68	73	135	40	55
E	92	69	140	52	32
F	73	54	98	48	41

What are the average marks obtained by all six students in chemistry?

गै`` अंकिज्ञे अ`ोह्ये देंज,( , `:ह्य. गं ने ज्` नै`ा ए` नंम ॐ`` (ह्र

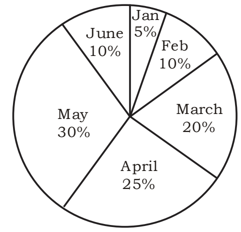
SSC CHSL 08/08/2023 Shift-01

(a) 35
(b) 45
(c) 50
(d) 40

25. Darjeeling gets tourists from two countries A and B. Percentage wise distribution of the influx of tourists is given below for the first six months of the year.

`कास्र्म ो ह्य `ह ह्येह्यA ने ग B` हर्र ह्य` ने एंह(म ितेंखं हर(टंह,(ो(ज्येह्यी ह्यर्र ह्य`ह्यं हने )ीअं` ेक्ष्चेए ि ग कीएगे` अज हर्क`` )`` (ा

Total number of tourists = 60000	
Month	**Ratio (A : B)**
Jan	5 : 7
Feb	6 : 7
Mar	3 : 2
April	8 : 7
May	4 : 5
June	3 : 4



Find the ratio of tourists from country A coming in During March and April.

ो 1खो ग ने-ट ो(` ह `गअ ह्ये A` हने अहि टह र्र ह्य`ह्यं जै र्स`` ` `` नअब्ले ए ज्ञे ए` ज्यास।

SSC CPO 03/10/2023 (Shift-01)

(a) 7 : 10
(b) 9 : 10
(c) 3 : 7
(d) 4 : 7

ANSWER KEY

1.(c)	2.(b)	3.(c)	4.(d)	5.(c)	6.(a)	7.(b)	8.(d)	9.(a)	10.(b)
11.(c)	12.(d)	13.(d)	14.(b)	15.(d)	16.(d)	17.(a)	18.(d)	19.(a)	20.(c)
21.(d)	22.(a)	23.(b)	24.(d)	25.(b)					

SOLUTIONS

1. (c) $\frac{4^{999}}{7} \Rightarrow \frac{(4^3)^{333}}{7} \Rightarrow \frac{(64)^{333}}{7} \Rightarrow (1)^{333} \Rightarrow 1$

2. (b) $x^3 + y^3 + z^3 - 3xyz = [(x-y)^2 + (y-z)^2 + (z-x)^2]$

$= \frac{(14+15+17)}{2}[(1)^2 + (1)^2 + (2)^2 + (3)^2]$

$= \frac{46}{2}[1 + 4 + 9] = \frac{46}{2} \times 14 = 322$

3. (c) $\frac{a^2 - ab + b^2}{a^3 + b^3}$

$= \frac{a^2 - ab + b^2}{(a+b)(a^2 - ab + b^2)}$

$= \frac{1}{(a+b)} = \frac{1}{0.320} = \frac{1000}{320} = \frac{100}{32} = 3.125$

4- (d) Average always is a middle number
Concept 1 : We add that number whihc comes before the avg. overall avg are decrease.
Concept 2 : We add that number which comes after the avg. than overall avg. are increase.
But here we add number at both side so avg. will be same.

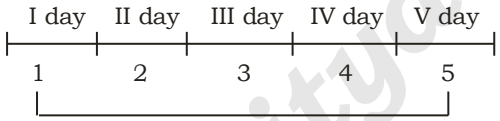
5. (c) $\frac{MP}{CP} = \frac{100 \pm P/L\%}{100 - D\%} = \frac{37062}{CP} = \frac{142}{67}$

$CP = \frac{37062 \times 67}{142} = Rs.17487$

6. (a) r = 16%, t = 4 years, Amount = 37210
Let; Principal = 100%
SI of 4 years at 16%
per annum = 16% × 4 = 64%
Then, Amount = Rs.164%

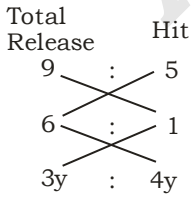
$P = \frac{37310}{164\%} \times 100\% = 22750$

7. (b) Total work = 20



Complete work = 15
Remaining work = 20 – 15 = 5
VIth 5 mens work together = 5 × 1 = 5
So, total days = 6

8. (d)



21 unit = 21y
1 unit = y
Also given, 1 unit = x
So, x = y
Hence, y – y = 0

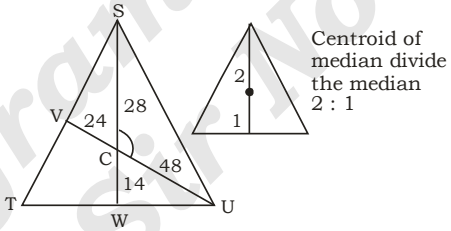
9. (a) Profit = 165 SP
1265 SP – 1265 CP = 165 SP
1100 SP = 1265 CP

$\frac{100}{115} = \frac{CP}{SP}$

$Profit\% = \frac{15}{100} \times 100\% = 15\%$

10. (b) Serface area of sphere = 616 cm^2
$4\pi r^2 = 616$
$\pi r^2 = 154$
$\pi r^2 = 154$
$\pi = 7cm$
T.S.A of hemisphere = $3\pi r^2$
$3 \times 154 = 462$ cm^2

11. (c)



$UW = \sqrt{(48)^2 + (14)^2}$
By triplet, 7, 24, 25

$\frac{\times 2}{14} \quad \frac{\times 2}{42} \quad \frac{\times 2}{50}$ So, UW = 50

12. (d)

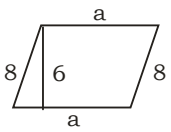
Formula $\Rightarrow \frac{S_1}{S_2} = \sqrt{\frac{t_2}{t_1}}$

$\frac{S_{Suman}}{S_{Rekha}} = \sqrt{\frac{t_{Rekha}}{t_{Suman}}}$

$\frac{S_2}{9} = \frac{3}{4}$

$S_2 = \frac{3 \times 9}{4} = 6\frac{3}{4}$ km/h

13. (d)



Perimeter of parallelogram = 48
2(a + b) = 48
(a + b) = 24
a + 8 = 24
a = 24 – 8 = 16
Then, Area = Base × Height
16 × 6 = 96 cm^2

14. (b) Let, CP of the manufactures = x

$x \times \frac{108}{100} \times \frac{110}{100} \times \frac{115}{100} = 11050$

x = Rs.8088

15. (d) $5x + \frac{1}{3x} = 4$

$\times\frac{3}{5}\left(\quad\right)\times\frac{3}{5}$

$3x + \frac{1}{5x} = \frac{12}{5}$

Then, $9x^2 + \frac{1}{25x^2} = \left(\frac{12}{2}\right)^2 - 2 \times 3 \times \frac{1}{5}$

$= \frac{144}{25} - \frac{6}{5} = \frac{144-30}{25} = \frac{114}{25}$

16. (d) Ritika 2 Vipul

3 : 1

7yrs ↓ ↓ 7yrs

(2 : 1)×2

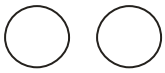
1

4 : 2

1 unit = 7

3 unit = 7 × 3 = 21

17. (a) Concept-1

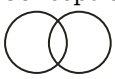


Distance between the centres > Sum of radius

Concept-2

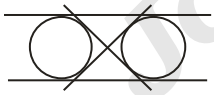
Distance between the centres = Sum of radius

Concept-3



Distance between the centres < Sum of radius

A.T.Q,



No. of common tangents = 4

18. (d) Let, Total votes = $100x$

Valid votes = $(100x - 84)$

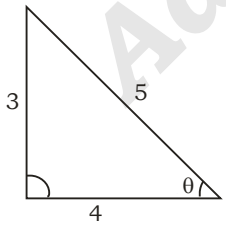
Winning candidate wor by 96 votes

$(100x - 84)\ (68 - 38)\% = 96$

$(100x - 84) \times \frac{24}{100} = 96$

$100x = 484$

19. (a)



$\frac{(\sin\theta + \tan\theta)(\cos\theta + \tan\theta)}{1 + \sin\theta + \cos\theta + \sin\theta.\cos\theta}$

$= \frac{\left(\frac{3}{5}+\frac{3}{4}\right)\left(\frac{4}{5}+\frac{4}{3}\right)}{1+\frac{3}{5}+\frac{4}{5}+\frac{3}{5}\times\frac{4}{5}}$

$= \frac{\frac{27}{30}\times\frac{32}{15}}{\frac{25+35+12}{25}} \Rightarrow \frac{\frac{9}{5}\times\frac{8}{5}}{\frac{72}{25}} \Rightarrow \frac{\frac{72}{25}}{\frac{72}{25}} = 0$

20. (c) Concept : $\frac{\text{Difference of speed}}{\text{Actual speed}} \times 60$

$\frac{40-32}{40} \times 60 = 12$ min

21. (d) $9^{x+2} = 240 + 9^x$

$9^x \times 9^2 - 9^x = 240$

$9^x (81 - 1) = 240$

$9^x \times 80 = 240$

$9^x = 3$

$(3^2)^x = 3^1$

$2x = 1$

$x = \frac{1}{2}$

then, $(16x^2)^x$

$\left(16 \times \left(\frac{1}{2}\right)^2\right)^{\frac{1}{2}}$

$\left(16 \times \frac{1}{4}\right)^{\frac{1}{2}}$

$(4)^{\frac{1}{2}} = \left(2^2\right)^{\frac{1}{2}} = 2$

22. (a) $\sqrt{1849} + \sqrt{0.0608 + x} = 43.25$

$43 + \sqrt{0.0608 + x} = 43.25$

$\sqrt{0.0608 + x} = 43.25 - 43$

$\sqrt{0.0608 + x} = 0.25$

Square on bothe side

$0.0608 + x = 0.0625$

$x = 0.0017$

23. (b) $100\% = 360°$

$1\% = \frac{360°}{100\%}$

$35\% = \frac{360°}{100\%} \times 35\% = 126°$

24. (d)

Total marks obtained in chemistry by all six sutudents

$43 + 35 + 22 + 40 + 52 + 48 = 240$

Average = $\frac{240}{6} = 40$

25. (b)

Tourist in march from country A

Tourist in April from country A

March		Apirl
$\frac{12000\times3}{5}$	:	$\frac{15000\times8}{15}$
7200	:	8000
9	:	10

1. A man earns a profit of 30% by selling a phone for a certain price. If he sells that phone at 3 times of selling price, then what will be the profit percentage?

एक व्यक्ति एक फोन को एक निश्चित मूल्य पर बेचकर 30% का लाभ अर्जित करता है। यदि वह उस फोन को विक्रय मूल्य के 3 गुना मूल्य पर बेचता है, तो लाभ प्रतिशत कितना होगा?

(a) 190% (b) 290%
(c) 90% (d) 100%

2. If (a + b) : (b + c) : (c + a) = 5 : 7 : 6, then what is the value of (a – b + c) : (a + b – c) ?

यदि (a + b) : (b + c) : (c + a) = 5 : 7 : 6 है, तो (a – b + c) : (a + b – c) का मान क्या है?

CDS 2024 (I)

(a) 1 : 1 (b) 2 : 3
(c) 3 : 1 (d) 4 : 3

3. What is the value of $2.\overline{3}+4.\overline{3}$?

$2.\overline{3}+4.\overline{3}$ का मान क्या है?

SSC GD 21/02/2024 (Shift-01)

(a) $\frac{21}{4}$ (b) $\frac{20}{3}$
(c) $\frac{22}{7}$ (d) $\frac{18}{7}$

4. The value of $\sin^2\frac{2\pi}{3}+\cos^2\frac{5\pi}{6}-\tan^2\frac{3\pi}{4}$ is:

$\sin^2\frac{2\pi}{3}+\cos^2\frac{5\pi}{6}-\tan^2\frac{3\pi}{4}$ का मान क्या है?

SSC Phase X 03/08/2022 (Shift- 02)

(a) $\frac{1}{2}$ (b) $\frac{1}{4}$
(c) 4 (d) 2

5. P, Q and R can finish a work in 5 days, 10 days, and 15 days, respectively, working alone. P and Q works on first day, P and R works on second day and P and Q works on third day and so on till the work is completed. In how many days the work will be completed?

P, Q और R अकेले काम करते हुए किसी काम को क्रमशः 5 दिन, 10 दिन और 15 दिन में पूरा कर सकते हैं। पहले दिन P और Q काम करते हैं, दूसरे दिन P और R काम करते हैं और तीसरे दिन P और Q काम करते हैं और काम पूरा होने तक यही क्रम चलता है। काम कितने दिनों में पूरा होगा?

SSC CGL TIER- II 07/03/2023

(a) $\frac{13}{2}$ (b) $\frac{9}{2}$
(c) $\frac{7}{2}$ (d) $\frac{5}{2}$

6. A person loses 15 percent on selling 50 shoes for Rs. 85. What should be the selling price of 50 shoes to earn a profit of 35 percent?

एक व्यक्ति को 50 जूते 85 रुपये में बेचने पर 15 प्रतिशत की हानि होती है। 35 प्रतिशत का लाभ अर्जित करने के लिए 50 जूतों का विक्रय मूल्य क्या होना चाहिए?

SSC GD 30/03/2024 (Shift-01)

(a) Rs.110 (b) Rs.115
(c) Rs.135 (d) Rs.120

7. A cube whose edge is 14 cm long has on each of its faces a circle of 7 cm radius painted yellow. What is the total area of unpainted surface? (Take $\pi=\frac{22}{7}$)

एक घन जिसकी भुजा 14 cm लंबी है, उसके प्रत्येक फलक पर 7 cm त्रिज्या का एक वृत्त पीले रंग से रंगा गया है। बिना रंगे हुए पृष्ठ का कुल क्षेत्रफल कितना है?

CDS 2024 (I)

(a) 126 square cm (b) 189 square cm
(c) 252 square cm (d) 315 square cm

8. Rahul earns an interest of Rs.2996 for the third year and Rs. 1400 for the second year on the same sum. Find the rate of interest per annum if it is lent at compound interest (compounding annually).

राहुल एक ही राशि पर तीसरे वर्ष के लिए 2996 रुपये और दूसरे वर्ष के लिए 1400 रुपये का ब्याज अर्जित करता है। यदि राशि चक्रवृद्धि ब्याज (वार्षिक रूप से संयोजित) पर उधार दी गई है, तो प्रति वर्ष ब्याज की दर ज्ञात कीजिए।

SSC GD 07/03/2024 (Shift-01)

(a) 113% (b) 114%
(c) 110% (d) 112%

9. The diameter of a solid iron ball is 10 cm and it is melted to form a solid cylinder of height $\frac{5}{3}$ cm. Find the diameter of cylinder.

स ˘ डेहॅ टे हॅह ठ)ह ˙`` ि उॅ 10 cm (ा जेॅ ा 4उह क्ष्क्रेट ˙ ˜ $\frac{5}{3}$ cm . क्षे 4क्क्रे टे ˘ स ˘ डेहॅ सहअॅ सअॅ ा लें (क्ष्सहअॅ ``` ि उॅ क्षे लें क्षक्स्क

(a) 10 cm (b) 20 cm
(c) 30 cm (d) 40 cm

10. If the 8-digit number 28*x*9683y is divisible by 24, then which of the following is not a possible value of '2*x* – y'?

कि ˘ ल्जंमर्ठ उर्क्षे ˘ 28*x*9683y क्षे . छॅ उॅहक्षेर्ने (क्ष लेंहक्षक्षक्ष क्ष लें तॅहउॅह ` क्षउे ˙ '2*x* – y' ` `` उक्षे क्षल तेअॅअक्ष(

(a) 0 (b) 12
(c) 6 (d) 9

11. The angles of elevation of the top of a tower from two points A and B at a distance of *x* m and (*x* + 5) m from the base of the tower of height 6 m and in the same straight line with it are complementary. What is the value of *x*?

बॅ तक्षॅ . क्ष 4क्क्रे टॅहरे र्य ˙ ˙ ` हजे ते ˘ उॅह*x* तक्षॅ जेॅ ा ˘ *x* + 2: तक्षॅ ˙ ˙ 8 ˘ 8 र्ए ˘ जेॅ ा ?उ ˙ ` हउे % स ˘ (8 उक्ष 8 ˙ ह्र ˘ तॅहक्ष%लें ` हक्षमवक्ष ह्र A जेॅ ा B उॅहरे र्य ˙ ˙ ` हरे क्षेक्ष ˙ ` ह? अॅअॅ ` हेंॅ ए ˘ (क्ष*x* ˙ `` तुर्थ ˘ दर्ॅ (

CDS 2024 (I)

(a) 4 m (b) 5 m
(c) 6 m (d) 9 m

12. The income of an employees is 30% more than his expenditure. If his income decreases by 10% and his expenditure increases by 3%, then by what per cent does his saving decrease or increase?

स ˘ ˙ तक्षे ˙ 8 ˙ 8 जे ि ?उ ˙ ` हैं ि ि उॅहनपी ˘ जक ˙ (क्ष कि ˘ ?उ ˙ 8 जे ि तॅह5पी ˘ ˙ 8 ˙ त8 ( हक्ष (ा जे ा ?उ ˙ ` हैं ि ि तॅहनी ˘ ˙ 8 यक्ष ˘ (हक्ष (क्ष लेंह?उ ˙ 8 सचल तॅहक ल्छेंह1क्षत लें ˙ 8 ˙ त8 ि ˘ यक्ष ˘ (हक्ष (

SSC Phase X 04/08/2022 (Shift- 02)

(a) $48\frac{1}{3}\%$ increase (b) $53\frac{1}{3}\%$ decrease
(c) $50\frac{1}{4}\%$ increase (d) $52\frac{1}{4}\%$ decrease

13. Three cubes of equal volume are joined end to end. Find the surface area of the resulting cuboid if the diagonal of the cube is $6\sqrt{3}$ cm.

सॅ सॅ जे ि ल्छेंअ ये टॅहलक्षअ क्रेअॅह ` हक्ष ˘ हउॅहक्ष ˘ हउरे ˙ ˙ जे एउॅ तॅह ा हें- ा लें (क्ष कि ˘ क्रेअॅ ` ˘ क्ष ˙ क्षेक्ष $6\sqrt{3}$ cm (क्ष लेंहएक्षे तॅह8 क्रेअेजें ˙ ˙ एक्षक्ष ˘ क्षेहएक्ष ˙ क्षे लें ˙ क्षक्स्क

SSC CGL 05/12/2022 (Shift-04)

(a) 509 cm² (b) 504 cm²
(c) 516 cm² (d) 512 cm²

14. If a + b + c = 6 and $a^2 + b^2 + c^2 = 38$, then what is the value of $a(b^2 + c^2) + b(c^2 + a^2) – c(a^2 + b^2) + 3abc$?

कि a + b + c = 6 जेॅ ा $a^2 + b^2 + c^2 = 38$ (क्ष लेंहa$(b^2 + c^2) + b(c^2 + a^2) – c(a^2 + b^2) + 3abc$ ˙ `` तेअॅ क्षे ल ˙ क्षक्स्क

SSC CPO 11/12/2019 (Shift-01)

(a) 3 (b) –3
(c) 6 (d) –6

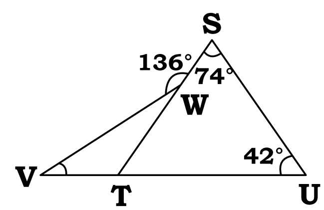
15. Two pipes A and B, can fill a tank with water in 36 hours and 12 hours respectively and a third pipe C, can empty it in 4 hours. If pipe A is opened at 12 PM, pipe B is opened at 2 PM, and pipe C is opened at 4 PM, the tank will be emptied at:

` हए 4एॅ A जेॅ ा B स ˘ रुम 8 ˙ ` हए अक्ष उॅहम तरे 0 नब जेॅ ा 5. ˘ क्रेअॅहतॅहक्षे ˘ उ ˙ लॅह(मजेॅ ा स ˘ लक्ष ˘ ˙ ए 4एॅ C ?उॅहछॅ क्रेअॅहतॅहक्षे टॅह8 ˙ `` उ ˙ लें (क्ष कि ˘ ए 4एॅ A जएॅ ˙ अ 5. ˘ सा ा हॅहरे हे ˙ ा लें (क्ष ए 4एॅ B जएॅ ˙ अॅ . ˘ सा ा हॅहरे हे ा लें (ा जेॅ ा ए 4एॅ C जएॅ ˙ अॅ छ सा ा हॅहरे हे ˘ ा लें (क्ष लेंहरुम 8 क लक्षहसा ा हॅहरे ट8 (हा ा स)8

(a) 5 : 00 PM (b) 5 : 20 PM
(c) 5 : 40 PM (d) 6 : 00 PM

16. In the given figure, ∠TSU = 74°, ∠SUT = 42° and ∠VWS = 136°. What is the value of ∠TVW?

8)4क्क्रे ए क्षे तॅह ∠TSU = 74°, ∠SUT = 42° जेॅ ा ∠VWS = 136° (क्ष∠TVW ˙ `` तेअॅ क लक्षअॅ (



(a) 10° (b) 20°
(c) 24° (d) 18°

17. Let X be a two-digit number and Y be another two-digit number formed by interchanging the digits of X. If (X + Y) is the greatest two-digit number, then what is the number of possible values of X?

तेअं टक्षकर्से X र्स ˘ `हजंम र्‍ष उर्स्‍ ˘ (ा जें ˘ Y र्स
जृ ि `हजंम र्‍ष उर्स्‍ ˘ (ा कउंहX ˙ `हजंमे है `हक्षक्षति
ए4र्स चाह: ˘ ˙ ˙ `हसअे ि)ि ˘ (र्हि किं (X + Y) त(़ त
`हजंम र्‍ष उर्स्‍ ˘ (ई लेंहX ˙ `हउमें ि तेअंहे ‍8 उर्स्‍
दर्ि ˘ (त

UPSC CSE 16/06/2024 (CSAT)

(a) 2 (b) 4
(c) 6 (d) 8

18. $222^{333} + 333^{222}$ is divisible by which of the following numbers?

$222^{333} + 333^{222}$ कक्षक्षकक्षका लतेंहहंक उं उर्स्‍ ˘ उंहक्षज्ञे र्नि ˘ (त

UPSC CSE 16/06/2024 (CSAT)

(a) 2 and 3 but not 37 (b) 3 and 37 but not 2
(c) 2 and 37 but not 3 (d) 2, 3 and 37

19. Consider the following statements:

कक्षक्षक्षक्षका लें %अेंहर्ए ˘ कक्षचे ˘ ˙ क्षक र्स0

I. In an acute triangle, the circumcentre is outside the triangle./र्स ˘ ़ुिअं `हें केज़ेम्ह तेंहएकं ़हें केज़ेमें ˙ `हसे(˘ (हें (म्ह

II. In a right triangle, the circumcentre is the midpoint of the hypotenuse./र्स उतं `हें केज़ेमें तेंहएकं हें ˙ क्षंक्ष ˘ तर्व कक्षमॅव(हें (म्ह

III. In an obtuse triangle, the circumcentre is inside the triangle./र्स ˘ जक ˘ ˙ `हें केज़ेमें तेंहएकं हें केज़ेमें ˙ `हजर्म ˘ (हें (म्ह

Which of the above statements is/are correct?

?एृक्षिक्षंग तेंहउंहे `क्षकउे ऊउंहे %अं उ(‍8 (म्ह(म

(a) Only I (b) Only II
(c) All I, II and III (d) Both II and III

20. $32^5 + 2^{27}$ is divisible by

$32^5 + 2^{27}$ क उउंहज्ञे र्नि (त

UPSC CSE 16/06/2024 (CSAT)

(a) 3 (b) 7
(c) 10 (d) 11

21. Two persons P and Q enter into a business. P puts Rs.14,000 more than Q, but P has invested for 8 months and Q has invested for 10 months. If P's share is Rs.400 more than Q's share out of the total profit of Rs.2,000, what is the capital contributed by P?

`है क्षिक्षंगP जें ि Q र्स ˘ ˙ ियउे ि ि ˙ र्हे ˘ ˙ ल्हे(र्हP, Q
˙ ‍8 ल्हअें तेंह5छ्धपपपं इएिहजकं ˘ ट)लें (ई कं़ ल्हP
अेंहलें त(‍8हें `हकर्स कक्षहें कं ि (ा जें ि Q अंह5पपं त(‍8ह
˙ `हकर्स कक्षहें कं ि (र्हि किं .ध्पपपं इएिहिं ˙ हें ˙ व
टे ज्ञें तेंहP ˙ ˘ ˘ कब्डे ़ Q ˙ `हकब्डेंहउंहछ्पपपं इएिहजकं
(ई लेंहP ‍े ˘ ˘ ट) 4क़)4क़ृ6 ‍8 क लक्ष‍8 (त

UPSC CSE 16/06/2024 (CSAT)

(a) Rs.30,000 (b) Rs.26,000
(c) Rs.24,000 (d) Rs.20,000

22. A number is mistakenly divided by 4 instead of multiplying by 4. What is the percentage change in the result due to this mistake?

र्स ˘ उर्स्‍ ˘ ˙ `हछें उंह )क्षंें ˙ ˙ अंहे `हस टंह)टलें‍8 उंहछें उंह
कक्षज़े कलें कं ि)ि ˘ (र्ह4उं)टलें‍8 ˙ हें ˙ ˙ क्षें एर्कंक्ष्े त
तेंह1कक्षे लें जर्स्‍ कं लक्षें (हे़

UPSC CSE 16/06/2024 (CSAT)

(a) 25% (b) 50%
(c) 72.75% (d) 93.75%

23. If 6tan A = 5, find the value of

$$\left(\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right)$$

कि ˘ 6tan A = 5 (ई लेंह

$$\left(\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right)$$ ˙ ˘ ˘ तेअं क्षे ल

क्षक र्स‍ञ

(a) $\frac{11}{5}$ (b) $\frac{13}{6}$
(c) $\frac{11}{6}$ (d) $\frac{13}{5}$

24. Radha, Pratima and Reena begin to run around a circular path and they complete their revolutions in 50 seconds, 75 seconds and 100 seconds, respectively. After how much time (in minutes) will they meet together at the starting point for the first time?

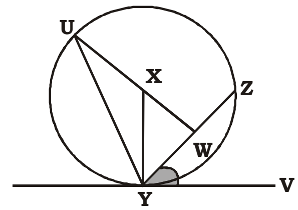
˜तेंई 1कक्षतें जें ि ˙ क्षअें र्स ˘ यृखें ˘ ˘ ˘ एृ% एृ ˘ `र्हअे
ऐक्षवें ˙ ˙ लें (र्मजें ि यंहम् तरे ö 2पपं उंह ऱ्ई ंई2 उंहें जें ि
5पपं उंहें तेंहजएअें चद ˘ ˘ एृ ˘ ˙ ˙ लें (र्हिक लअेंहउतिं
एकक्षअेंहतहें ˙ `हसे ˘ यंहए(ट ‍8 सें ˘ ˘ ा ˙ क्षें ˘ कक्षमॅवए(
र्स ˘ उे % कक्षट हे‍8

SSC MTS 11/09/2023 (Shift- 03)

(a) 4 (b) 5
(c) 6 (d) 3

25. In the given figure, X is the centre of the circle, XW ⊥ YZ and ∠ZYV = 32°. What is the value of ∠YUW?

‍8)क्षंक़्जे ए कक्षं तेंह कक्षमॅवX यृखें ˘ ˘ ˙ हें (ा लें% XW ⊥
YZ जें ि ∠ZYV = 32° (र्ह∠YUW ˙ ˘ ˘ तेअं कं लक्षें (त



(a) 16° (b) 14°
(c) 12° (d) 18°

ANSWER KEY

1.(b)	2.(c)	3.(b)	4.(a)	5.(c)	6.(c)	7.(c)	8.(b)	9.(b)	10.(d)
11.(a)	12.(b)	13.(b)	14.(d)	15.(d)	16.(b)	17.(d)	18.(b)	19.(b)	20.(c)
21.(a)	22.(d)	23.(c)	24.(b)	25.(a)					

SOLUTIONS

1. (b) CP = 100, SP = 100 × $\frac{130}{100}$ = 130

Three times of SP = 130 × 3 = 390
Then, Profit = 290

So, Profit % = $\frac{290}{100}$ × 100 = 290%

2. (c)
$$\begin{array}{rcl} a + b & = & 5 \\ b + c & = & 7 \\ c + a & = & 6 \\ \hline 2(a + b + c) & = & 18 \end{array}$$
(a+ b + c) = 9
Then, c = 4, b = 3, a = 2

$\frac{a-b+c}{a+b-c} = \frac{2-3+4}{2+3-4} = \frac{3}{1}$

3. (b) $2 + 0.\overline{3} + 4 + 0.\overline{3}$

$6 + \frac{3}{9} + \frac{3}{9}$

$6 + \frac{1}{3} + \frac{1}{3}$

$6 + \frac{2}{3} = \frac{20}{3}$

4. (a) $\sin^2\frac{360}{3} + \cos^2\frac{900}{6} - \tan^2\frac{540}{4}$

$\sin^2 120° + \cos^2 150° - \tan^2 135°$
$\sin^2(90° + 30°) + \cos^2(90° + 60°) - \tan^2(90 + 45°)$
$\cos^2 30° + \sin^2 60° - \cot^2 45°$

$\left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 - (1)^2$

$\frac{3}{4} + \frac{3}{4} - 1$

$\frac{6}{4} - \frac{4}{4} = \frac{2}{4} = \frac{1}{2}$

5. (c)
P → 5 — 6
Q → 10 — 3 → 30
R → 15 — 2

P + Q	P + R	P + Q	P + R = 4
9	8	9	8

26 work complete in = 3 days

Then, Remaining work = 30 – 26 = 4

So, 4 work complete in = $\frac{4}{8} = \frac{1}{2}$ days

Total days = 3 + $\frac{1}{2}$ = $\frac{7}{2}$

6. (c) $\frac{\text{Price}_1}{\text{Quantity}_1 \times \left(100 \pm \frac{P_1}{L_1}\right)} = \frac{\text{Price}_2}{\text{Quantity}_2 \times \left(100 \pm \frac{P_2}{L_2}\right)}$

$\frac{85}{50 \times 85} = \frac{x}{50 \times 135}$

x = 135

Alternate Method:-
In both condition quantity are same.
Initial SP = 85

then, CP = 85 × $\frac{100}{85}$

Now, SP at 35% profit

85 × $\frac{100}{85} \times \frac{135}{100}$ = 135

7. (c) $6a^2 - \pi r^2 \times 6$

$6\left[(14)^2 - \frac{22}{7} \times 7 \times 7\right]$

6[196 – 154]
6 × 42 = 252 cm^2

8. (b) CI of the 2nd year = 1400
CI of the 3rd year = 2996
Difference = 2996 – 1400 = 1596
We get interest 1596 at 1400

So, Rate% = $\frac{1596}{1400} \times 100$ = 114%

9. (b) $\frac{4}{3}\pi r^3 = \pi R^2 h$

$\frac{4}{3} \times 5 \times 5 \times 5 = R^2 \times \frac{5}{3}$

R^2 = 25 × 4

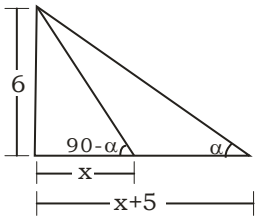
R = $\sqrt{100}$
R = 10
Then, diameter = 10 × 2 = 20

10. (d) Rule of 8:- Last three digits should be divisible by 8.
83y
832, y = 2
Rule of 3: Sum of digits should be divisible by 3.
Digital sum of digits = 2
Then, 1 + 2 = 3
4 + 2 = 6
7 + 2 = 9

$2x - Y$	$2x - Y$	$2x - Y$
2 – 2 = 0	8 – 2 = 6	14 – 2 = 12

So, we can say that 9 is not divisible by 24.

11. (a)



$\tan(90 - \alpha) = \frac{6}{x}$, $\tan(\alpha) = \frac{6}{x+5}$

$\cot \alpha = \frac{6}{x}$, $\tan \alpha = \frac{6}{x+5}$

$\tan \alpha = \frac{x}{6}$, $\tan \alpha = \frac{6}{x+5}$

Then, $\frac{x}{6} = \frac{6}{x+5}$

$x^2 + 5x = 36$
$x^2 + 5x - 36 = 0$
$x^2 + 9x - 4x - 36$
$x(x + 9) - 4(x - 9)$
$x - 4 = 0$
Then, $x = 4$

12. (b) Income = Expenditure + Saving

130	=	100	+	30
↓ –10%		↓ +3%		
117	=	103	⇒	14

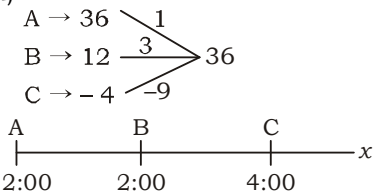
Saving Decrease in% = $\frac{30-14}{30} \times 100 = 53\frac{1}{3}\%$

13. (b) Diagonal of cube = $a\sqrt{3}$
$a\sqrt{3} = 6\sqrt{3}$; a = 6
then, in cuboid l = 18, b = 6, h = 6
So, Total surface area of cuboid = $2(lb+bh+hl)$
= 2(108 + 36 + 108) = 2 × 252 = 504

14. (d) If given two equation and three variable then, We take any one variable 0
Here, Let C = 0
∴ a + b = 6 $a^2 + b^2 = 38$ $ab^2 + ba^2 = ?$
$ab^2 + ba^2$
ab(b + a)
–1 × 6 = –6

$(a + b)^2 = a^2 + b^2 + 2ab$
36 = 38 + 2ab
–2 = 2ab
–1 = ab

15. (d) Total work



4A + 2B + (A + B + C) × t = 0
4 + 6 + (1+ 3 – 9)×t = 0
10 – 5t = 0
10 = 5t
t = 2 Two hour after 4 : 00pm
So, 6 : 00pm

16. (b) Sum of two interior angle = exterior angle
74° + 42° = ∠STV
∠STV = 116°
∠VWT = 180° – 136° = 44°
Then, ∠TVW = 180 – (116 + 44) = 180 – 160 = 20°

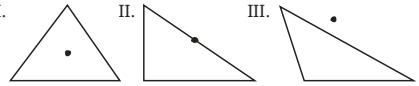
17. (d) x = 10a + b
y = 10b + a
$x + y = 11a + 11b$
$x + y = 11(a + b)$
99 = 11(a + b)
Then, a + b = 9
So, Possible values of x

$x + y$	$x + y$
1 + 8 = 9	8 + 1 = 9
2 + 7 = 9	7 + 2 = 9
3 + 6 = 9	6 + 3 = 9
4 + 5 = 9	5 + 4 = 9

Total possible values of x ⇒ 8

18. (b) Even + odd = odd ⇒ Not divisible by 2
222, 333 are divisible by 111 and 111 = 3 × 37
So, We can say that divisible by 3 and 37 but not 2.

19. (b) I. II. III.



Only IInd correct.

20. (c) $32^5 + 2^{27}$
$(2^5)^5 + 2^{27}$
$2^{25} + 2^{27}$
$2^{25}(1 + 2^2)$
$2^{25} \times 5$
That means divisible by 2, 5 and 10.
So, According to options (c) = 10

21. (a)

	P	Q
Investment		
Time	8	10
Profit	$x + 400$	x
	↓	↓
	800 + 400 = 1200	800

$2x + 400 = 2000$
$2x = 1600$
$x = 800$

$\text{Investment} = \frac{\text{Profit}}{\text{Time}}$

Then,

$\text{Investment} \Rightarrow \frac{P}{12} : \frac{Q}{10}$

Investment Ratio = 15 : 8
Difference = 7 unit = 14,000

15 unit = $\frac{14000}{7} \times 15 = 30{,}000$

22. (d) Original Error

$x \times 4$ $\frac{x}{4}$

16 : 1

So, percentage change = $\frac{15}{16} \times 100 = 93.75\%$

23. (c) $\left[\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right]$

$\frac{2\sin A \cos B}{2\cos A \sin B}+1$

$\frac{\sin A}{\cos A}+1$

$\tan A + 1 \Rightarrow \frac{5}{6}+1=\frac{11}{6}$

Alternate Method:-

$\left[\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right]$

$\frac{\sin A+\sin B+\sin A-\sin B}{\cos A+\cos B+\cos A-\cos B}+1$

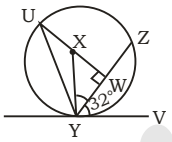
$\frac{2\sin A}{2\cos A}+1$

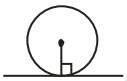
$\tan A + 1 \Rightarrow \frac{5}{6}+1=\frac{11}{6}$

24. (b) LCM of (50, 75, 100) = 300 sec in minute

$= \frac{300}{60}$ = 5 minute

25. (a)





XYW = 90 – 32 = 58
YXW = 180 – (58 + 90) = 32°

By the same chord, If angle of centre 32° then angle on circumfrence will be half $\frac{32}{2}$ = 16°

1. Find the sum of the following:

कै ·क्क कें दें लें ऐ होग्अ ें रे दें लच्चा्ु

$\frac{3}{2}+\frac{3}{6}+\frac{3}{12}.....+....+\frac{3}{870}$

(a) $\frac{29}{10}$ (b) $\frac{23}{29}$

(c) $\frac{23}{13}$ (d) $\frac{25}{11}$

2. Simplify./ॅ टॅ र्लु्ा

325 + 276 ÷ [150 – {9 × 9 + (83 – 4 × 15)}]

SSC CGL 20/07/2023 (Shift-03)

(a) 332 (b) 333

(c) 334 (d) 331

3. In a right – angled triangle ABC, AB = 15 cm, BC = 20 cm and AC = 25 cm. Further, BP is the perpendicular on AC. What is the difference in the area of triangles PAB and PCB?

ॅसले हें केी त्रॅं ABCॅ सेंद्य AB = 15ॅ ॅह्मचें BC = 20 ॅह्मच।ॅ ॅ AC = 25ॅ ॅह्मच(ॅ क्रुर्लह। टे के जे BP, AC गॅ टमक्दें (ॅ केी त्रॅं PABॅ ।ॅ ॅ PCBॅ र्लह?ोग्अॅ सेह्य उएॅ । र्बॅ (ऋ

CDS 2024 (I)

(a) 40 cm² (b) 42 cm²

(c) 45 cm² (d) 48 cm²

4. In a mixture, milk and water are in ratio of 2: 3. Some milk is added to the mixture because of which ratio of milk and water becomes 10: 3. How much milk was added as a percentage of initial mixture?

स्लॅ क्वनें सेंद्य ोॅ ।ॅ ॅ गे ॅचलेॅ । ॅ ्ते दें ॅ ॅ 8 ० (ु क्वनें सेंद्यक्ॅ सेपें सेंद्य ोॅ क्टे ऐॅ ते दें (ॅ। क्ा ॅलह लें नें ोॅ ।ॅ ॅ गे ॅचलेॅ । ॅ ्ते दें 5% 8 ० (ॅहते दें (ु र्गे4केीलें क्वनें र्लहगक्ू ्दें र्लहल गॅ सेंद्यक्दें ॅ ोॅ क्टे ऐ)ऐ ऋ

SSC GD 21/02/2024 (Shift-01)

(a) 120% (b) 140%

(c) 100% (d) 160%

5. When the price of a commodity increased by 23%, a family reduced its consumption in such a way that the expenditure on it was only 5% more. By what percentage has the family reduced the consumption of the commodity (correct to one decimal place)?

तयॅ स्लॅ क्ड्दॅझलचॅलक्ाद्ें संद्य 01ॅ लॅचक्क्ॅ (ह्मद्ें हस्ल गर्कक्ें ॅ ॅहकू्लॅच ग्दें लेॅहकूॅ 7लेॅ ॅ ल्सॅ र्ल ॅ कएॅ क्ा न्ॅ गॅ (ॅहहके टॅ ख्एॅ लह्टॅ ख्ॅ । कलॅ ठॅु गर्कक्ें ॅ ॅ ह क्ड्दॅझलचॅ ग्दें सेंद्यक्ादें ॅह7क्ू ्दें लॅचलस्ॅचलॅच(ॅ। .स्ल ् स्टके इेॅ ॅ दलॅ ॅ(ज्ञ ऋ

SSC PHASE IX 2022

(a) 14.20% (b) 15.8%

(c) 14.6% (d) 15.2%

6. If $a-\frac{1}{a}=4$, then the value of $a+\frac{1}{a}$ is:

एकॅ $a-\frac{1}{a}=4$ (ॅ्जदेंॅह $a+\frac{1}{a}$ लेॅ सेॅ ॅ (8

SSC CPO 05/10/2023 (Shift-02)

(a) $5\sqrt{5}$ (b) $4\sqrt{5}$

(c) $2\sqrt{5}$ (d) $3\sqrt{5}$

7. The ratio of the number of boys to the number of girls in a school of 1650 students is 6 : 5. If 124 new boys are admitted and few new girls are admitted, the ratio changes to 4 : 3. What is the ratio of the newly admitted girls. to the newly admitted boys?

5ब्ॅ% क्3 के्प्रे्ह्य के टॅहस्लॅ इलष्टॅ सेंद्यटभ्लेॅ्हलॅचॅमिएॅ ।ॅ हॅ टभ्क्ाऐॅह्यलॅचॅमिएॅ लेॅ । ॅ ्ते दें बॅ 8 ख (ॅ एक 5ॅ ॅ ॅ सॅ टभ्लेॅहा।ॅ ॅ लज्ञॅ क्रुटभ्क्ाऐॅह्यलेॅह7क्ॅहें कएॅ ते दें (ॅ्जदेंह। ्ते द॒ ॅ 8 ० (ॅहते दें (ॅ 7क्ॅहें टॅहहके टच ॅ क्रुटभ्क्ाऐॅहा।ॅ ॅ सॅ टभ्लेॅहलेॅ । ॅ ्ते दें उएॅ (ऋ

SSC MTS 13/09/2023 (Shift- 01)

(a) 4 : 3 (b) 3 : 4

(c) 9 : 62 (d) 62 : 9

8. Two pipes A and B, can fill a tank with water in 36 hours and 12 hours respectively and a third pipe C, can empty it in 4 hours. If pipe A is opened at 12 PM, pipe B is opened at 2 PM, and pipe C is opened at 4 PM, the tank will be emptied at:

ॅ ॅहगेक्ॅ A ।ॅ ॅ B स्लॅ ःसॅचलेॅहगे ॅचॅहॅक्ष्ू 8 0ब ।ॅ ॅ 5ॅ डेमॅहसॅही ॅ ॅलदॅह(ॅ। ।ॅ ॅ स्लॅ दर्ब ॅ गेक्ॅ C न्ॅह ॅ डेमॅहसॅहॅ टॅचर्ल ॅ ॅलदेॅ (ॅ एकॅ गेक्ॅ A । गॅ. 5ॅ यतॅहॅ ॅहे ॅ ते दें (ॅ्जगे कॅ B । गॅ. ॅ ॅ न्ॅ यतॅहॅ ॅहे ते दें (ॅ।ॅ ॅ गेक्ॅ C । गॅ. ॅ ॅ़ॅ यतॅहॅ ॅहे ॅ ते दें (ॅ्ज दें ह: सॅचक्ादें ॅहयतॅहॅ ॅ टॅच(ॅहते स)ज्ञ

(a) 5 : 00 PM (b) 5 : 20 PM

(c) 5 : 40 PM (d) 6 : 00 PM

9. Pipe A can fill $\frac{3}{4}$th part of a tank in 9 hours, pipe B can fill $\frac{2}{3}$rd part of the tank in 12 hours and pipe C can fill $\frac{5}{6}$th part of the tank in 20 hours. In how much time will all pipes together fill the tank completely?

(a) $5\frac{7}{13}$ hours (b) $6\frac{6}{11}$ hours
(c) $5\frac{9}{11}$ hours (d) $6\frac{8}{13}$ hours

10. Let x be the compound interest at the end of 3 years on a sum of Rs.1000 at the rate of 10% compounded annually and y be the simple interest at the end of 3 years on a sum of Rs 1000 at the annual rate of 11%. What is the difference between x and y?

CDS 2024 (I)
(a) Rs.16 (b) Rs.15
(c) Rs.5 (d) Rs.1

11. The compound interest amounts on a certain sum at a certain rate percentage p.a. for the second year and third year are Rs.3,300 and Rs.3,630 respectively. What is the amount of the same sum at the same rate in $2\frac{1}{2}$ years interest compounded yearly?

SSC CPO 11/12/2019 (Shift-2)
(a) Rs.37,215 (b) Rs.36,300
(c) Rs.38,115 (d) Rs.36,000

12. Rs.7200 is divided among P, Q and R such that 6 times of P's share is equal to 2 times of Q's share which is equal to 3 times of R's share. What is the share of Q?

SSC GD 30/03/2024 (Shift-01)
(a) Rs.1200 (b) Rs.3600
(c) Rs.4800 (d) Rs.2400

Directions (13-15): Consider the following for the next items that follows:

Two trains A and B started from stations P and Q respectively toward each other. Train A started at 7 p.m. at a speed of 60 km/hr and train B started at 4 a.m. (next day) at a speed of 90 km/h. The distance between the two stations P and Q is 800 km.

13. How far from station Q will the two trains meet?

CDS 2024 (I)
(a) 104 km (b) 144 km
(c) 156 km (d) 504 km

14. At what time will the two trains meet?

CDS 2024 (I)
(a) 5 : 28 a.m (b) 5 : 44 a.m
(c) 4 : 56 a.m (d) 6 : 24 a.m

15. If the lengths of the two trains A and B are 400 m and 500 m respectively, then what is the time taken by them to cross each other?

CDS 2024 (I)
(a) 21.6 seconds (b) 18.2 seconds
(c) 17.4 seconds (d) 15.4 seconds

16. A goods train, travelling at constant speed, crossed two persons walking in the same direction (as that of the train) in 11.6 seconds and 11.8 seconds, respectively. The first person was walking at 5.85 km/h, while the second was walking at 6.3 km/h. What was the speed of the train (in km/h)?

[illegible]

SSC Phase XI 27/06/2023 (Shift-03)

(a) 32.5 (b) 32.6

(c) 32.4 (d) 32.2

17. In ΔTAP, $\angle TAK = 60°$, TA = 6 cm AP = 8 cm. K is the midpoint of AP. A line from K is produced to meet TP at O such that $\angle AKO = 120°$. Find the length of OK.

[illegible]

SSC Phase X 01/08/2022 (Shift- 03)

(a) 5 cm (b) 4 cm

(c) 3 cm (d) 6 cm

18. A solid hemisphere has radius 21 cm. It is melted to form a cylinder such that the ratio of its curved surface area to total surface area is 2 : 5. What is the radius (in cm) of its base $\left(\text{take } \pi = \frac{22}{7}\right)$?

[illegible]

SSC CGL 06/12/2022 (Shift-01)

(a) 23 (b) 21

(c) 17 (d) 19

19. P, Q and R can complete a piece of work in 6 days, 12 days and 15 days, respectively. P starts working alone on 1st 4th 7th ..., Q works alone on 2nd 5th 8th and R works alone on 3rd 6th 9th This pattern is continued till the work is completed. In how much time (in days) is the entire work done?

[illegible]

MTS 06/09/2023 (Shift-03)

(a) $10\frac{3}{5}$ (b) $9\frac{3}{10}$

(c) $10\frac{1}{2}$ (d) $9\frac{1}{2}$

20. In two circles centred at O and O', the distance between the centres of both circles is 17 cm. The points of contact of a direct common tangent between the circles are P and Q. If the radii of both circles are 7 cm and 15 cm, respectively, then the length of PQ is equal to:

[illegible]

SSC CPO 03/10/2023 (Shift-3)

(a) 15 cm (b) 22 cm

(c) 10 cm (d) 17 cm

21. Eleven friends spent Rs 18 each on a tour and the twelfth friend spent Rs 11 less than the average expenditure of all twelve of them. What is the total money spent by twelve friends?

[illegible]

SSC MTS 02/05/2023 (Shift-02)

(a) Rs.204 (b) Rs.215

(c) Rs.212 (d) Rs.208

22. Four tangents drawn to a circle intersect each other to form a quadrilateral. The lengths of 3 consecutive sides are 6cm, 10cm and 16cm. Find the length of the fourth side.

[illegible]

(a) 12 cm (b) 9 cm

(c) 7 cm (d) 10 cm

23. In a quadrilateral ABCD, AB = BC and CD = DA, AC and BD are diagonals such that AC = 6 cm and BD = 12 cm. What is the area of the quadrilateral?

धदीह्नां ABCD सेंहा AB = BCˇ ।ˋ ˇ CD = DA, AC ।ˋ ˇ BDˇ क्वलनेंप्रकृ 7लेˋˇ (ˇमकां AC = 6ˇ ४ह्नंच।ˋ ˇ BD = 12ˇ ४ह्नंच(ˇ धदीह्नां लेˇ ?ह्नेगत्रं क्वादंˋˇ (ह्न

CDS 2024 (I)

(a) 24 cm^2
(b) 30 cm^2
(c) 36 cm^2
(d) 40 cm^2

24. Simple interest and compound interest (compounding annually) on a principal at a certain rate of interest for 2 years is Rs.12000 and Rs.14400 respectively. What is the principal?

कंकूधदं श्रे तं ˋˇ गं ˇ नं क्वेंहलहकाेसं स्लं सह्ट ˋ, ˇ गं ४ˋˋ, ˋ नें श्रे तं ।ˋ ˇ धक्ष क्क्रा श्रे तं . के केंप्रा ˋ लगं ४ह ४ष्ठे ह्नादशं क्ष सू ˋ ४ 5 %%ं ह्र गएंह।ˋ ˇ 5, %% ह्र गएंह(ˇ सह्ट ˋ, ˇ क्वादंˋˇ (ह्न

SSC GD 21/02/2024 (Shift-01)

(a) Rs.15000
(b) Rs.22000
(c) Rs.17000
(d) Rs.18000

25. Water is pouring into a cuboidal reservoir at the rate of 50 litres per minute. The volume of the reservoir is 120 m^3. How many hours will it take to fill the reservoir?

स्लं डंˋ ˇ लंह।ˋ लेˋˇ लंहतटˋ एं सेंहाखं ट्चं 7क्व कां :ˇ लंच ˋˇ ४ंहगें चभ टं ˇ तेˋ ˋ (ˇ (ˇ तटˋ एं ले ।ˋ एदं ˇ 5 % सर्वे (ˇ तटˋ एं लेंहींˋ ˋ हसेंह्नक्वादं हडेमह ट)ह्नेह

MTS 04/09/2023 (Shift- 03)

(a) 30
(b) 40
(c) 35
(d) 45

ANSWER KEY

1.(a)	2.(d)	3.(b)	4.(d)	5.(c)	6.(c)	7.(c)	8.(d)	9.(a)	10.(d)
11.(c)	12.(b)	13.(c)	14.(b)	15.(a)	16.(c)	17.(c)	18.(b)	19.(b)	20.(a)
21.(a)	22.(a)	23.(c)	24.(a)	25.(b)					

SOLUTIONS

1. (a) $3\left(\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+\ldots\ldots+\ldots\ldots+\frac{1}{29\times30}\right)$

$= 3\left(\frac{1}{1}-\frac{1}{2}+\frac{1}{2}-\frac{1}{3}+\frac{1}{3}-\frac{1}{4}+\ldots\ldots+\ldots\ldots+\frac{1}{29}-\frac{1}{30}\right)$

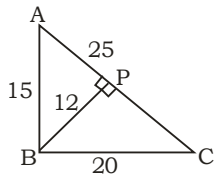
$= 3\left(\frac{1}{1}-\frac{1}{30}\right) = 3\times\frac{29}{30}=\frac{29}{10}$

2. (d) $325 + 276 \div [150 - \{9 \times 9 + (83 - 4 \times 15)\}]$

$= 325 + 276 \div [150 - 104]$

$= 325+\frac{276}{46} = 325 + 6 = 331$

3. (b)



$BP = \frac{15\times20}{25} = 12$

In ΔBPA

$\angle P = 90°$

Then, $AP = \sqrt{(15)^2-(12)^2} = \sqrt{225-144} = \sqrt{81} = 9$

Similarly, PC = 16

then, Difference between Area ΔBPC and ΔBPA

$= \left(\frac{1}{2}\times16\times12\right)-\left(\frac{1}{2}\times9\times12\right) = \frac{1}{2}\times12\ (16-9)$

$= \frac{1}{2} \times 12 \times 7 = 42\ cm^2$

4. (d)

Milk	:	Water
2	:	3
↓		
10	:	3

Because water are some at both places.

Then, $\frac{8}{5} \times 100 = 160\%$

5. (c)

100 → Price 23% increase = 123

Exp.= 5% decrease = 105

Decrease % $= \frac{123-105}{123} \times 100 = 14.6\%$

6. (c) $\frac{a-1}{a} = 4$ Then, $\frac{a+1}{a} = \sqrt{(4)^2+4}$

$\sqrt{16+4} = \sqrt{20} = 2\sqrt{5}$

7. (c)

Boys		Girls
6	:	5
×150 ↓		↓ ×150
900	=	750
+124		↓ +x
1024		3×256 = 768
256 (4	:	3)

Given, 11 unit = 1650

1 unit = 150

Then, $750 + x = 768$

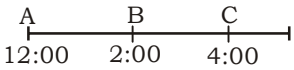
$x = 768 - 750 = 18$

Ratio of new admission

Girls	:	Boys
18	:	124
9	:	62

8. (d)

A → 36, B → 12, C → −4 ; 1, 3, −9 → 36



$4A + 2B (A + B + C) \times t = 0$

$4 + 6 + (1 + 3 - 9) \times t = 0$

$10 - 5t = 0$

$t = 2$

So, tank will be emptied at = 6:00 pm

9. (a)

$A\times\frac{3}{4}=9$ $B\times\frac{2}{3}=12$ $C\times\frac{5}{6}=20$

Total = 12 Total = 18 Total = 24

A → 12, B → 18, C → 24 ; 6, 4, 3 → 72

Together fill the tank $= \frac{72}{13} = 5\frac{7}{13}$ hour

10. (d) CI of 3 year at rate 10% per annum = 33.1%

SI of 3 year at rate 11% per annum = 33%

Then, Difference = 33.1% – 33% = .1%

So, $1000 \times \frac{.1}{100}$ = Rs.1

11. (c) IInd yr 3300, III yr 3630 → 330

$\text{Rate\%} = \frac{330}{3300}\times100\% = 10\%$

By Successive: 10%, 10% → 21%, 5% → 27.05% CI of $2\frac{1}{2}$ years

Now, Principal = 100%

Amount in Ist year = 100%+10% = 110%

110% = 3300

$100\% = \frac{3300}{110\%} \times 100\% = 3000$

Then, CI of $2\frac{1}{2}$ years

$= \frac{3000\times27.05\%}{100\%}$ = Rs.38.115

12. (b) $P \times 6 = Q \times 2 = R \times 3$

P : Q : R

2 : 6 (3 : 2) × 2

2 : 6 : 4

1 : 3 : 2

Share of Q $= \frac{3}{6} \times 7200$ = Rs.3600

13. (c) A = 60 km/h → P ——— 800 km ——— ← B = 90 km/h Q

A complete distance at 7 pm to 4 am
= 60 × 9 = 540 km
A and B relative speed = 90 + 60 = 150 km/h
Remaining distance = 800 – 540 = 260 km

When, time = $\frac{260 \text{ km}}{150 \text{ km/h}} = \frac{26}{15}$ hr.

So, Distance between meeting point and Q

= $\frac{26}{15} \times 90 = 156$ km

14. (b) Time = $\frac{260 \text{ km}}{150 \text{ km/h}} = \frac{26}{15}$ hr

= $1\frac{11}{15} \times 60 = 1$ hour 44 min

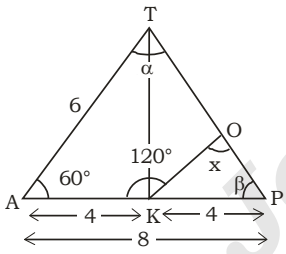
So, 5 : 44 am

15. (a) Time = $\frac{\text{Length of (A + B)}}{\text{Relative speed of A and B}}$

= $\frac{400+500}{150} = \frac{900 \text{ km}}{150 \text{ km/h}} = \frac{900 \times 18}{150 \times 5} = 21.6$ sec

16. (c) Let, Speed of train = x
Distance = Distance
$(x - 5.85)11.6 = (x - 6.3)11.8$
$(x - 5.85)58 = (x - 6.3)59$
$58x - 339.3 = 59x - 371.7$
$x = 32.4$

17. (c)



In Δ KOP;

∠ OKP = 180 – 120 = 60°

Then, Δ TAP ≅ Δ OKP

$\frac{TA}{OK} = \frac{AP}{KP} \Rightarrow \frac{6}{OK} = \frac{8}{4}$

OK = 3

18. (b) Volume of hemisphere = Volume of cylinder

$\frac{2}{3}\pi r^2 = \pi r^2 h$

$\frac{2}{3} \times 21 \times 21 \times 21 = r^2 \times h$

$14 \times 441 = r^2 \times h$

then,
$r^2 = 441$
$r = 21$

19. (b) P → 6, Q → 12, R → 15 ; 10, 5, 4 ; 60

A Ist, IVth, VIIth = 10 × 3 = 30
Q IInd, Vth, VIIIth = 5 × 3 = 15
R IIIrd, VIth, IXth = 4 × 3 = 12
9 days ⇒ 57 work
Remaining work ⇒ 60 – 57 = 3

Complete by P in = $\frac{3}{10}$ days

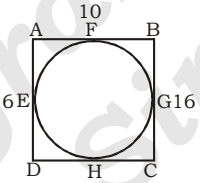
total days = $9\frac{3}{10}$ days

20. (a) DCT = $\sqrt{(d)^2 - (r_1 - r_2)} = \sqrt{(17)^2 - (15-7)^2}$

= $\sqrt{289-64} = \sqrt{225} = 15$ cm

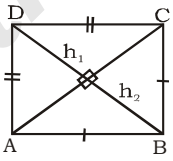
21. (a) Let, average of twelve friends = x
$12x = (11 \times 18) + (x - 11)$
$12x = 198 + x - 11$
$12x - x = 187$
$11x = 187$
$x = 17$
then, total money spent by twelve friends
= 12 × 17 = 204

22. (a)



AB + DC = BC + AD
10 + DC = 16 + 6
DC = 12

23. (c)



Given,
AC = 6 cm
BD = 12 cm
When adjacent sides of a quadilateral are equal, then the diagonals intersect at 90°

Now, area of quadrilateral ABCD = $\frac{1}{2} \times AC \times (h_1 + h_2)$

= $\frac{1}{2} \times 6 \times 12 = 36$ cm²

24. (a)
Let, principal = P

	S.I	C.I
Ist year →	6000	6000
IInd year →	6000	8400

Rate % = $\frac{2400}{6000} \times 100 = 40\%$

Principal = $\frac{6000 \times 100}{40}$ = Rs.15000

25. (b) 1 ml = 1m³
1000 ml = 1000 cm³
1 l = 1000 cm³

Time = $\frac{120 \times 1000l}{50l/\text{m}}$ = 2400 min

(in hr) = $\frac{2400}{60}$ = 40 hr

1. Which of the following numbers leaves the remainder equal to the highest common factor of 6, 8 and 9, when divided by 6, 8 & 9?
  कै काकि दं लंख्याएंहगो ा एंअएसचें गेंहतु ६``हें नं  एह क्षीं  कावदं  गसेंहजसें  ा हेक्जक्ं  तु  ६``हें नं गेंहल(येल एलेजप्ञॅ्ग्हम्सेम्सें म्वदें (ह
  SSC CPO 04/10/2023 (Shift-3)
  (a) 506 (b) 575
  (c) 291 (d) 433
2. The six-digit number 7x1yyx is a multiple of 33 for non-zero digits x and y. Which of the following could be a possible value of (x + y)?
  ,(ˆ मेंहागअएसचें 7x1yyx ा क्कहसें मेंहx``हें y गेंहकारें 00 गअ)ड्डं (ॅ%कै काकि दं लंख्याएंहगो ा ४ ऐ काग्ू जं (x + y) गें एमें कादं लें (ˆहएगदें (ह
  SSC Phase-XI 30/06/2023 (Shift-04)
  (a) 5 (b) 4
  (c) 2 (d) 3
3. At what rate percentage per annum will Rs.14,400 amount to Rs.15,876 in one year, if interest is compounded half-yearly?
  चकं ल्वेज्ं इ्वेकेंम् 1 जें एंहएवेंझादं (ˆहदेंहका एं क्काे द पे केंम् सं एंहछ्ु प्रछ्ं 7जकेंहगअइ सेक् म्न्खसें छ्ु ४त्त 7जकेंह(ˆहज़े स्हेञ
  SSC Phase IX 15/03/2022 (Shift-03)
  (a) 15% (b) 5%
  (c) 10% (d) 8%
4. Find the sum of simple and compound interest received after three years at 40% compound interest on Rs.36000.
  0तऽऽऽ 7जकेंहजसें प्रछ्० व. पकां ल्वेज्ं जसें दअें पकेंहगह म् ् केंम्वं ऐ इ स्के ``हें व. पकां ल्वेज्ं गें चेह्जक्ं ऐ दं गक्षेंस%
  (a) Rs.100040 (b) Rs.105984
  (c) Rs.201032 (d) Rs.213555
5. If $\sqrt{1+\frac{x}{529}}=\frac{24}{23}$, then the value of x is:
  चकं $\sqrt{1+\frac{x}{529}}=\frac{24}{23}$ (ॉ देंह x गें लें ऐ दं गक्षेंस%
  SSC CPO 11/11/2022 (Shift-02)
  (a) 15 (b) 27
  (c) 47 (d) 30
6. In a hotel, ration is available for 148 persons for 51 days. If 37 persons left the hotel, then for how many days will the remaining ration last?
  स्गं (ˆहटं लेंह्छ्प्रेेंं :चकहदचेंहगेंहकारें ख्र्ें कं गे सेा``  डजटल्ं  (ॅ% चकं  0र्ऽ :चकहदचेंहें ह(ˆहटं  ,हख कचेु  देंहो हेंसेा`` कादं हकं हेंदगं वटचेह६
  SSC Phase X 02/08/2022 (Shift- 02)
  (a) 69 (b) 67
  (c) 65 (d) 68
7. In △ABC, AB and AC are produced to points D and E, respectively. If the bisectors of ∠CBD and ∠BCE meet at the point O and ∠BOC = 57°, then ∠A is equal to:
  △ABCं लुेंह AB``हें AC गें ह. लो ६ कहें 2D``हें E दगं म्न्खें ज़े दें (ॅ% चकं ∠CBD``हें ∠BCE गह एल क्षें  ज़गं  क८ 2Oं  जसें काटदेंह(मं``हें ∠BOC = 57° (ॉ देंह ∠A गें लें ऐ दं गसेंह
  SSC CPO 24/11/2020 (Shift-01)
  (a) 93° (b) 57°
  (c) 66° (d) 114°
8. The average of 45 numbers was found to be 39. Later on, it was detected that a number 65 was misread as 56. Find the correct average of the given numbers.
  प्रह्रे एसचें `हांगं`` एदं 0र्ं जेचें)चे%म् ं लुेंह च(ं जदे वटें कां एसचें तह्रे गें ह)टदअएंहख्ं ज्ंखक्षेंचें)चे रेंे% अ)ढेंएसचें `हांगं  ए(अें`एदं ऐ दं गक्षेंस%
  SSC CPO 05/10/2023 (Shift-02)
  (a) 36.2 (b) 37.2
  (c) 38.2 (d) 39.2
9. Somesh is a shopkeeper who gives two successive discounts on an umbrella marked Rs.560. The first discount given is 17%. If the customer Mahesh pays Rs. 420 for the umbrella, then find the second discount given (correct to two places of decimals).
  ऐ हाहें स्गं ाे ``सें(ा ज़ेंहखदं  7जकेंह कादं लूचें पे टअ ,दसेंजसें `ह. कांगं  ॄं  क्रें`` गसेंे (ॅ% अ)ढेंडक्रेल ॄं छ्रठ्ं (ॅ%चकं)९ गें ल(हें ,दसेंगेंहकारें प्रछ्ं 7जकेंह गें ी 2)दे`` गसेंे (ॉ देंह अ)ढेंडकादअें ॄं ़ ा ल्टप गेंह`हकेंे दगं ए(अें ऐ दं गसेंह
  SSC Phase XI 27/06/2023 (Shift-01)

(a) 4.69% (b) 9.64%
(c) 6.49% (d) 6.94%

10. If $x^2 - x = 17$, then find the value of $(x+7)^2 + \frac{39^2}{(x+7)^2}$

चकॅ $x^2 - x = 17$ (ॉ देंह $(x+7)^2 + \frac{39^2}{(x+7)^2}$ गे लेंॅ ऐ दं ग स्ह्र

(a) 121 (b) 125
(c) 117 (d) 147

11. The LCM of $\frac{1}{3}, \frac{3}{5}, \frac{4}{7}$ and $\frac{9}{16}$ is :

$\frac{1}{3}, \frac{3}{5}, \frac{4}{7}$ गे $\frac{9}{16}$ LCM क्षचें (½

SSC CPO 03/10/2023 (Shift-02)

(a) 38 (b) 49
(c) 36 (d) 81

12. Find the value of $\sqrt{\frac{1 - \tan A}{1 + \tan A}}$

$\sqrt{\frac{1 - \tan A}{1 + \tan A}}$ गे लें ऐ दं ग ज्ञ्स%

SSC CPO 04/10/2023 (Shift-02)

(a) $\sqrt{\frac{1 + \sin A}{\cos A}}$ (b) $\sqrt{\frac{1 + \sin 2A}{\cos 2A}}$
(c) $\sqrt{\frac{1 - \sin A}{\cos A}}$ (d) $\sqrt{\frac{1 - \sin 2A}{\cos 2A}}$

13. If $\frac{7+5\sqrt{2}}{7-5\sqrt{2}} + \frac{1-\sqrt{2}}{1+\sqrt{2}} = x + y\sqrt{2}$ then find the value of $\left(\frac{2x}{y}\right)$

चकॅ $\frac{7+5\sqrt{2}}{7-5\sqrt{2}} + \frac{1-\sqrt{2}}{1+\sqrt{2}} = x + y\sqrt{2}$ देंह $\left(\frac{2x}{y}\right)$ गे लें ऐ दं ग स्ह्र

(a) $\frac{4}{3}$ (b) 3
(c) 2 (d) $\frac{3}{2}$

14. A person walks with speed 2 km/hr and reaches his destination at 2 : 25 p.m. If the person had walked at 6 km/hr, he would have reached at 2 : 09 p.m. At what time did he start walking?

स्गॅ :चकोंकरुं का लॅअ-ॅ्रमें गअ)कों एंहवटदें (ॉ ेंस रु ६ रु६ p.m. जंह)ध्वःचें जंस ज(ख्रदें (½चकॅ प(:चकोंक्त का लर्भ्.्रमें गअ)कों एंहवटदें (हे देंहप(रु ६ ६ p.m. ज(ख्रदे %डएं हकादें हम्ज्ञंहवट ॅ ।2 काचें रेंु६

(a) 2 : 01 p.m. (b) 2 : 00 p.m.
(c) 1 : 58 p.m. (d) 1 : 50 p.m.

15. A and B are equally efficient, and each can individually complete a piece of work in 36 days, if none takes any holiday. A and B started working together on this piece of work, but A took a day off after every five days of work, while B took a day off after every seven days of work. If they had started work on 1 July 2021, on which date was the work completed?

A ॅ ॅ स B एलें 1 जं एंहग2टं (मं ॅ स चकॅ गे ह्रज्ञी अ ,ठ्ठकें (अटहें (ॉ देंहक्रस्विग :चकोक)दं 1 जं एंह0तं कॅ ह लॅह्रस्गॅ गे लें जॅस गसं एगदें (½A ॅ ॅ स B हध्ुॅ गे ल जसं स्गॅ ऐ रुं गे लं गसें ।2 काचेु टह्र A ह(स जेबॅ कॅ गॅहग लें गॅहमे स्गॅ कॅ गअ, ठ्ठक टअंझ म्का B ह(सं ऐ दं कॅ गॅहग लें गॅहमे स्गॅ कॅ गअ, ठ्ठक टअं चकॅ हेंह हछं ज्ञठ ध्ठरुधरुछं गे हग लें । 2 काचे रुेंु देंहग लं का एं दं स्ह्रि गे हजसें (2 ६

SSC CPO 05/10/2023 (Shift-03)

(a) 19 July 2021 (b) 20 July 2021
(c) 22 July 2021 (d) 21 July 2021

16. The length of the common chord of two intersecting circles is 24 cm. If the diameter of the circles are 30 cm and 26 cm, then the distance between the centres (in cm) is:

ेहक्रहरुहअपर्भे ह्रग अडी चंकक् ज्ञअ गअटमे ध्ठरुप्र एहॅअ(½चकॅ पर्भे ह्रगे :चेएं 0६ एहॅअ ेंस रुतं एहॅअ(ु देंहग ह्रेंह्रगहम्अ गअ स्रु एहॅअल्ह्र (6

SSC CPO 05/10/2023 (Shift-03)

(a) 18 cm (b) 16 cm
(c) 12 cm (d) 14 cm

17. The ratio of the number of boys to that of girls in a village is 5 : 3. If 40% of the boys and 60% of the girls appeared in an examination, then the ratio of the number of boys and girls who appeared in the examination to the number who did not appear in the same examination, is:

स्गॅ)पॅ ल्हृट खेंह्रगअएसचें ॅ ॅ संट ख चेंह्रगअएसचे गे ॅ ॅ ज्रदं रुं6 6 ०(½चकॅ प्र६० ट खेंह ॅ संतध्० ट ख चेम स्गॅ जसॅभें लहृ। कटॅ (ध्रु देंहजसॅभें लहृ। कटॅ (हह पे टॅहट खेंह्रस्पर्मट ख चेंह्रगअएसचें ॅ ॅ स डएअजसॅभें । कटॅ ॅ (हंहपे टॅह्रगअएसचें गे ॅ ॅ ज्रदं क्षचें (हे ६

SSC Phase-XI 30/06/2023 (Shift-04)

(a) 17 : 21 (b) 19 : 21
(c) 17 : 27 (d) 19 : 23

18. What is the value of $(a^3 + b^3 + c^3)$ if $(a + b + c) = 10$, $(a^2 + b^2 + c^2) = 38$ and $abc = 30$?

चकॅ $(a + b + c) = 10$, $(a^2 + b^2 + c^2) = 38$ ॅ ॅ स $abc = 30$ (ॉ देंह $(a^3 + b^3 + c^3)$ गे लें कादं (६

(a) 180 (b) 160
(c) 200 (d) 120

19. **ABCD is a trapezium, such that AB and DC are parallel and BC is perpendicular to them. If ∠DAB = 45°, BC = CD = 3 cm, what is the length of AB?**

ABCD धएँ क्रा सेएंहस्ग एल्टै म वदीड्ढ (ा कं AB ` सें DC एले ` ष्ठसें (र्म ` सें BC डं जसें टमें (म्र चक ∠DAB = 45°, BC = CD = 3 एहअ(ुहं देंहAB गअटै मे ध्ठक्ष्चें (ह

(a) $\frac{6}{\sqrt{2}}$ cm
(b) 5 cm
(c) $5\sqrt{2}$ cm
(d) 6 cm

20. **A woman worker has an increase of $12\frac{1}{2}$% in her wages rate per hour but there is a drop of 10% in the number of hours worked per week. If her original weekly wages for a week of 40 hours is Rs.38,400, then the percentage increase in her total weekly wages is:**

स्ग ल्कटे श्रक्ला गअल्ज्ञ स्अ से ल्हजक्ष ्मेंह $12\frac{1}{2}$% गअपक्ष (हअ(ा टक्ष जक्ष एभ्वे(गे लं कास)से ्मेह गअएसचें ल्हछ्ठ गअक्सेप्र (हअ(ा% चकं प्रघ ्मेंहगह स्ग एभ्वे(गहकस डएगअल्ट ऐ भ्वेक्ग ल्ज्ञ स्अ0ठु प्रघ्घ 7जचेंह(ुा देंहडएगहगट ऐ भ्वेक्ग पहं ल्हजक्ष।द पक्ष (ठ

SSC Phase-IX 14/03/2022 (Shift-03)

(a) 1.25%
(b) 2%
(c) 2.25%
(d) 1.15%

ANSWER KEY

1.(d)	2.(a)	3.(c)	4.(b)	5.(c)	6.(d)	7.(c)	8.(d)	9.(b)	10.(d)
11.(c)	12.(d)	13.(b)	14.(a)	15.(d)	16.(d)	17.(b)	18.(b)	19.(d)	20.(a)

SOLUTIONS

1. (d) H.C.F of (6, 8, 9) = 1
When we divide any Number by 9. We get any remainder, that Number digital sum is equal to remainder.
Option (a) 506 (b) 575 (c) 291 (d) 433
= 2 = 8 = 3 = 1

2. (a) 33 = 11 × 3 (we check multiply of 3 and 11)
7 + x + 1 + y + y + x
8 + 2 (x + y) (check by options)
8 + 2 × 5 (option 'a')
8 + 10 = 18 → Divisible by 3

3. (c) 2 half year Principle Amount
14400 : 15876
400 : 441
1 half year $\sqrt{400}$: $\sqrt{441}$
20 : 21

Rate % = $\frac{1}{20}$ × 100 = 5% (half yearly)
Per annum rate = 5 × 2 = 10%

4. (b) SI for 3 years at 40% per annum = 40 × 3 = 120%
CI for 3 years at 40% per annum = 174.4%
Sum of SI CI = 120 + 174.4 = 294.4%

$36000 \times \frac{294.4}{100} = 105984$

5. (c) $\sqrt{1+\frac{x}{529}} = \frac{24}{23}$

$\sqrt{\frac{529+x}{529}} = \frac{24}{23}$

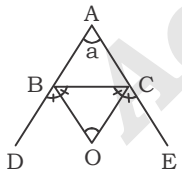
when we root $\frac{24}{23}$ then $\sqrt{\frac{576}{529}}$

So, $\sqrt{\frac{529+x}{529}} = \sqrt{\frac{576}{529}}$
529 + x = 576
x = 576 – 529 = 47

6. (d) We calculate at remaining part.
Total food × Total person
= Remaining person × x
= 148 × 51 = 111 × x

$x = \frac{148 \times 51}{111} = 68$

7. (c)



$57° = 90 - \frac{a}{2}$

$\frac{a}{2}$ = 90 – 57
a = 33 × 2 = 66°

8. (d) d = – 56 + 65 = 9

Increase avg. = $\frac{9}{45} = \frac{1}{5}$ = 0.2
Then, right avg. = 39 + 0.2 = 39.2

9. (b) Overall discount = $\frac{140}{560} \times 100 = 25\%$

$15x + 17 - \frac{x \times 17}{100} = 25$

$x - \frac{17x}{100} = 8$

$\frac{83}{100}x = 8$

$x = \frac{800}{838} = 9.64\%$

Alternate Method:

I Discount 100 83
II Discount 4×83 3×100
Final = 4 : 3
IInd discount = 4 × 83 : 3 × 100
83 : 75

$\frac{8}{83} \times 100 = 9.64\%$

10. (d) Let,
(x + 7) = y
x = y – 7
(y – 7)² – (y – 7) = 17
y² + 49 – 14y – y + 7 = 17
y² – 15y + 56 – 17 = 0
y² – 15y + 39 = 0
equation divide by y.

$y + \frac{39}{y} = 15$

$y^2 + \frac{39^2}{y^2} = (15)^2 - 2 \times y \times \frac{39}{y}$

$y^2 + \frac{39^2}{y^2} = 225 - 78$

$y^2 + \frac{39^2}{y^2} = 147$

So, $(x+7)^2 + \frac{39^2}{(x+y)^2} = 147$

11. (c) $\frac{\text{L.C.M.of}}{\text{H.C.F.of}} = \frac{(1, 3, 4, 7)}{(3, 5, 7, 16)} = \frac{36}{1} = 36$

12. (d) $\sqrt{\frac{1-\tan A}{1+\tan A}}$

$\sqrt{\frac{(\cos - \sin)^2}{\cos^2 - \sin^2}} = \sqrt{\frac{\cos^2 - \sin^2 - 2 \times \sin \times \cos}{\cos 2A}}$

$= \sqrt{\frac{1 - \sin 2A}{\cos 2A}}$

Note : –
$\cos^2\theta - \sin^2\theta = \cos 2\theta$

Alternate Method:

$\sqrt{\frac{1-\frac{\sin}{\cos}}{1+\frac{\sin}{\cos}}} \Rightarrow \sqrt{\frac{\frac{\cos - \sin}{\cos}}{\frac{\cos + \sin}{\cos}}}$

$\Rightarrow \sqrt{\frac{\cos - \sin}{\cos + \sin}} \Rightarrow \sqrt{\frac{(\cos - \sin)(\cos - \sin)}{\cos^2 - \sin^2}}$

$\Rightarrow \sqrt{\frac{\cos^2+\sin^2-2\sin\cos}{\cos 2A}}$

$\boxed{2\sin\cos = \sin 2A}$
$\boxed{\cos^2 - \sin^2 = \cos 2A}$

$\Rightarrow \sqrt{\frac{1-\sin 2A}{\cos 2A}}$

13. (b) $\frac{7+5\sqrt{2}}{7-5\sqrt{2}} + \frac{1-\sqrt{2}}{1+\sqrt{2}} = x + y\sqrt{2}$

By Rationalize:

$\frac{(7+5\sqrt{2})^2}{-1} + \frac{(1-\sqrt{2})^2}{-1}$

$\frac{49+50+70\sqrt{2}}{-1} + \frac{1+2-2\sqrt{2}}{-1}$

$-102 + (-68\sqrt{2})$

$-102 - 68\sqrt{2} = x + y\sqrt{2}$

$x = -102$

$y = -68$

Hence, $\frac{2x}{y} = \frac{2\times -102}{-68} = 3$

14. (a) Speed = 1 : 3

Time = 3 : 1

2 unit → 16 m

3 unit → 24 m

He start walking = 2 : 25 + 24 = 2 : 01 pm

15. (d) A → 36 days, 1; B → 36 days, 1; Total work 36

A complete work in 5 days = 5

B complete work in 7 days = 7

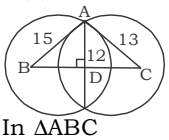
So, 7 days → 12 work

3×↓ 3×↓

21 days → 36 work

21 july 2021

16. (d) ∴



In ΔABC

BC = 9 (By pythagoras triplet)

(9, 12, 15)

In ΔADC

DC = 5 (By pythagoras triplet)

(5, 12, 13)

BC = 9 + 5 = 14 cm

17. (b) Boys : Girls

50 : 30

Appear: 20 + 18 = 38; Not Appear: 30 + 12 = 42

19 : 21

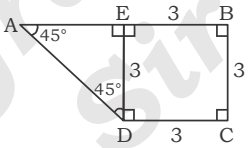
18. (b) Let: a = 5, b = 3, c = 2

5 × 3 × 2 = 30

$5^2 + 3^2 + 2^2 = 25 + 9 + 4 = 38$

$5^3 + 3^3 + 2^3 = 125 + 27 + 8 = 160$

19. (d)



∠A and ∠D = 45%

So, sides are equal = 3

AE = 3

AB = 3 + 3 = 6

20. (a) Wages rate (per hour) = 8 : 9

Worked (per hour) = 10 : 9

80 : 81

Increase = 1 unit

80 unit = 38400

1 unit = $\frac{38400}{80}$ = Rs.480

Increase % = $\frac{480}{38400}\times 100$ = 1.25%

1. **What should be added to each of the numbers 39, 42, 9 and 10 to get the numbers which are in proportion?**

ˆ`ˆ ˆ lafo;kvksa ea ls çR;sd esa D;k tksM+k tkuk pkfg, rkfd izkIr gksus okyh la[;k,¡ lekuqikr esa gksa\

CISF HC 30/10/2023 (Shift-03)

(a) 2 (b) 7
(c) 9 (d) 6

2. **If $x^2 + 6x + 1 = 0$, then the value of $(x + 6)^3 + \frac{1}{(x+6)^3} = ?$**

;fn $x^2 + 6x + 1 = 0$ gS] rks $(x + 6)^3 + \frac{1}{(x+6)^3}$ dk eku Kkr dhft,A

SSC CPO 10/11/2022 (Shift-03)

(a) 245 (b) 216
(c) 186 (d) 198

3. **In ΔABC, P and Q are the middle points of the sides AB and AC, respectively. R is a point on the segment PQ such that PR : RQ = 1 : 4. If PR = 5 cm, then BC = ?**

ΔABC esa P vkSj Q Øe'k% Hkqtkvksa AB vkSj AC ds eè; fcanq gSaA R, js[kk[kaM PQ ij ,d fcanq bl izdkj gS fd PR : RQ = 1 : 4 gSA ;fn PR = 5 cm gS] rks BC = ?

SSC Phase XI 27/06/2023 (Shift-03)

(a) 46 cm (b) 50 cm
(c) 48 cm (d) 44 cm

4. **Ruhi and Renu got pocket money from their mother in the ratio of 3 : 5 and they spent in the ratio of 7 : 10. If Ruhi's pocket money is 75% of Renu's expenditure, then Ruhi's savings is what percentage of the Renu's savings?**

:gh vkSj js.kq dks mudh ek¡ ls 3 : 5 ds vuqikr esa tsc [kpZ feyk vkSj mUgksaus 7 : 10 ds vuqikr esa [kpZ fd;kA ;fn :gh dk tsc [kpZ js.kq ds [kpZ dk 75% gS] rks :gh dh cpr] js.kq dh cpr dk fdruk izfr'kr gS\

(a) 10% (b) 30%
(c) 25% (d) 20%

5. **Let x be the least number of 5 digits, which when divided by 28, 40, 42 and 48, leaves remainder 6 in each case and x is divisible by 246. What is the sum of the digits of x?**

ˆ`ˆ ekuk 5 vadksa dh og lcls NksVh la[;k x gS] ftls 28, 40, 42 vkSj 48 ls foHkkftr djus ij izR;sd fLFkfr esa 6 'ks"kQy izkIr gksrk gS vkSj x, 246 ls foHkkT; gSA x ds vadksa dk ;ksx Kkr dhft,A

IB ACIO GRADE II 18/01/2024 (Shift-02)

(a) 13 (b) 12
(c) 15 (d) 14

6. **A right circular cone of largest volume is cut out from a solid wooden hemisphere. The remaining material is what percentage of the volume of the original hemisphere?**

ydM+h ds ,d Bksl v/Zxksys ls vf/dre vk;ru okyk ,d yEco`Rrh; 'kadq dkVk tkrk gSA 'ks"k cph lkexzh] ewy v/Zxksys ds vk;ru dk fdruk izfr'kr gS\

SSC CPO 12/12/2019 (Shift-01)

(a) 50% (b) $33\frac{1}{3}\%$
(c) 75% (d) $66\frac{2}{3}\%$

7. **The difference between the heights of two towers is 9 m. The angle of depression of the top of the shorter tower as seen from the top of the taller tower is 30°. The two towers are in a horizontal line. What is the horizontal distance (in metres) between the two towers?**

nks ehukjksa dh Å¡pkbZ;ksa ds chp dk varj 9 m gSA Å¡ph ehukj ds f'k[kj ls ns[kus ij NksVh ehukj ds f'k[kj dk voueu dks.k 30° gSA nksuksa ehukjsa ,d {ksfrt js[kk esa gSaA nksuksa ehukjksa ds chp dh {ksfrt nwjh (ehVj esa) Kkr dhft,A

(a) $9(1+\sqrt{3})$ (b) $3\sqrt{3}$
(c) $9\sqrt{3}$ (d) $3(\sqrt{3}-3)$

8. **A mixture contains liquids A and B in the ratio 2: 5 respectively. When 52 liters of liquid A and 13 liters of liquid B were added to the mixture, the ratio of liquid A and liquid B became 5: 6 respectively. Which among the following statements is/are true?**

स्गॅ कृ धें ह्यएट्ट ल ेॅक्रA ज्ञ ् हे B न्ॆ 8ó1ó 1 गह ज्ञ लिएँ ह्य (ा, यऽ कृ धें ह्यी ट् ख्ॅ एट्ट A ज्ञ ् हे ज ट् ख्ॅ एट्ट B ये हैउ ये ऐं (ां ऐंहएट्ट A ज्ञ ् हे एट्ट B गॅ ज्ञ लिएँ न्ॆ 8ó1ó ऽ (हये ऐं (ा, कॅह्म्झ ऐं ग ेॅ ह्म ॆ ह्य ॅहगे ि ॅ ॅॅ कृ (ह्य

I. Initial quantity of mixture is 133 liters.

कृ धें गॅ ते थ्ळ्ले गॆ ॅॅ ह्वॅ जॅ ॅ ट् ख्ॅ (ा,

II. Final quantity of liquid A is 90 liters.

एट्ट A गॅ ज्ञ ॅॅ ह्वॅ सॅ ट् ख्ॅ (ा,

(a) Both I and II (b) Only I

(c) Neither I nor II (d) Only II

9. The value of /गॆ ॅॅ ि (ा,

$$\frac{[\tan^2(22°-\theta)-\tan^2(\theta+68°)-\operatorname{cosec}^2(68°+\theta)+\cot^2(22°-\theta)]}{[3(\cot^2 52°-\sec^2 38°)+2(\operatorname{cosec}^2 28°-\tan^2 62°)]}$$

SSC PHASE IX 2022

(a) 0 (b) -1

(c) 1 (d) $\frac{1}{5}$

10. Mukesh invested Rs. 100000 in a company. He would be paid interest at 7% per annum compounded annually. Find the interest for the 3rd year.

ॆ ह्ये हिज़ा ।।।ॅ त्लहॅगे कॅन्हें कारे -स्गॅ गह्वॅ ह्य छ्रॅ ह्य 7 तवॅ् न्बॅ ह्ल ्ॅ ऽ हन्के ह्म न्न न्ह्व ॅ रे यें करे ये न), ऐंहए ्थ्न बॅ ह्ल हॅह्व रॅ रे यें ध ऐं ग् ह्लरह

CISF HC 30/10/2023 (Shift-01)

(a) Rs.8200.33 (b) Rs.7550.53

(c) Rs.8333.33 (d) Rs.8014.3

11. if $9^{x+2} = 240 + 9^x$ then Find the value of $(16x^2)^x$

रकॅ $9^{x+2} = 240 + 9^x$ (ां ऐंह $(16x^2)^x$ गॆ ॅॅ ि (़

CISF HC 30/10/2023 (Shift-03)

(a) 9 (b) 4

(c) 1 (d) 2

12. If $\frac{8x}{2x^2+7x-2} = 1$, $x > 0$, then what is the value of $x^3 + \frac{1}{x^3}$?

रकॅ $\frac{8x}{2x^2+7x-2} = 1, x > 0$ (ां ऐंह $x^3 + \frac{1}{x^3}$ गॅ ॆ ॅ ि धे ऐं ग् ह्ल,

SSC CPO 12/12/2019 (Shift-01)

(a) $\frac{3}{8}\sqrt{17}$ (b) $\frac{3}{4}\sqrt{17}$

(c) $\frac{5}{8}\sqrt{17}$ (d) $\frac{5}{4}\sqrt{17}$

13. Atul started a business by investing amount Rs.2400 more than investment of Prem who joined him after 9 months. Profit received by them after 21 months partnership is in the ratio 25 : 12 respectively. Calculate investment made by Atul.

ज्ञएद नें तेहॅ पे ऽ कॅन्हें गॅ)ढ्ठ्रॆ कें ॅ ही प ा ॅ त्लहह ज्ञकगॅ कॅन्हें गथ्रॅहस्गॅ ठ लेऽ 8लॅ गथऐं (ां तेहॅ स ॆ (हि% ॅ ठ लेऽ ह्य8 कटॅ (हें (ा, ॅ ढहे ॄ गॅही ज ॆ (हि% ॅ छगे हते ु ऐं ट 2ॅ गॅ ज्ञ लिएँ न्ॆ 8ó1ó जॅ (ा, ज्ञएद पे ऽ कॅन्हें गॅ)ढ्ठ्रॆ कें गॅ)धॅ ॅ गथ्ह्य

(a) Rs. 15000 (b) Rs. 24000

(c) Rs. 18000 (d) Rs. 12000

14. If sec(5α –15°) = cosec (15° – 2α), then the value of cos3α + sin2α + cotα is:

रकॅ sec(5α –15°) = cosec (15° – 2α) (ां ऐंह cos3α + sin2α + cotα गॆ ॅॅ ि (़

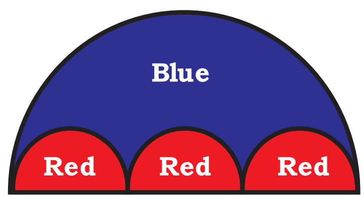
SSC PHASE IX 2022

(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{3\sqrt{3}}{2}$

(c) $\frac{\sqrt{3}(\sqrt{3}-1)}{2}$ (d) $\frac{\sqrt{3}(\sqrt{3}+1)}{2}$

15. As shown in the given figure, inside large semicircle, three semicircle (with equal radii) are drawn so that their diameters all sit on the large semicircle's diameter. What is the ratio between the red and blue areas?

यॅ कॅ ् (हॅ ज्ञ ऊवॅ ह्मकॅ रे ॅ)रॅ (ां %?ह्ज़ 5ह्वें गह ज्ञ मथॅ ्पूि ज्ञ 5ह्वें रु%ऽ %ऽ केह्मरे ॅ न्ट हें ऄॅ ह्महये एँह्य(मऐ क छॅ ॅ 2ॅ गॅ हठे ॅ ॅ %?ह्ज़ 5ह्वें गॅ हठे ॅ ॅ ल्ऽ %ॅ ये स्ॅ टे ट ज्ञ ् हे िटॅ हऐ ह्लट ह्मॅ ह% ॅ गॅ ज्ञ लिएँ करे (ह्य



SSC CPO 10/11/2022 (Shift-01)

(a) 4 : 3 (b) 1 : 2

(c) 2 : 1 (d) 3 : 4

16. A can complete a certain work in 30 days. B is 20% more efficient than A. C can complete $\frac{2}{5}$ part of the same work in 8 days. A and B together complete $\frac{11}{15}$ part of the work. The remaining work is completed by A and C together. In how many days was the entire work completed?

A का ू किकाम एं गे रंक्राों हैं । कों हैं हल्के गर्ठ गाए (ाँ B, A ही।7 झकर्ग गहेटर (ाँ C छ ू गे रंक्रा

$\frac{2}{5}$ ट) रें कों हैं हल्के गर्ठ गाएँ (ाँ A झे ए B कैटगर्ठ

गे रंक्रो $\frac{11}{15}$ ट) ल्हें गथ्रहे(मे 8 हें गे रंक्राA झे ए C

पे ठे कैटगर्ठ ल्हें कार ये एं (ाँ ल्हें गे रंक्रा एंहकी ह

हत्ते व

IB ACIO GRADE II 18/01/2024 (Shift-03)

(a) $14\frac{2}{5}$ (b) 14

(c) $13\frac{1}{5}$ (d) 13

17. The printed price of a TV is Rs. 57200. A dealer allows two successive discounts of 10% and 5%. Find the price which a customer has to pay for it.

स्गं खू ू गू कएं गू एं 1ही।। त्ल हे(ास्गं ?ूटर्ठ

जा7 झे ए 17 गू हि कैगं खहे हें (ाँ =(गू ए

ठे एं गथ्रये हे)(गं गे हे6 गहकरं 2ठ्एं गथ्र (हे,

CISF HC 30/10/2023 (Shift-01)

(a) Rs.51030 (b) Rs.48906

(c) Rs.52750 (d) Rs.48620

18. What annual installment (inRs) will discharge a debt of Rs.9,429 due in three years at 12.25% simple interest per annum?

जी ने 17 = केंक्र : थ्र्ठ रे यं गू र्ठ ल्हें एुीं =बेक्र

ह हें स्नपी सें ल्ल हे गहे ज धें गे 2ठ्एं गथ्रहेगह

कर = केंक्र क 8एं रुल - हें कएं (हे व

Note: Installments will be paid at the end of Year 1, Year 2 and Year 3.

िहे0 क 8एं हगं 2ठ्एं ल(टहे=बेक्र इ थ्रहे=बेंक्र ए

एू थ्रहे=बेक्र हझ सं हकरं ये र),

SSC CPO 05/10/2023 (Shift-01)

(a) 2800 (b) 2700

(c) 2840 (d) 2760

19. AP and AQ are two tangents to a circle with center O. If ∠PAQ = 64°, then find the measure of ∠OQP.

AP झे ए AQ स्गं =डें गू हव्ले क्र (हे O =डें गे गहें (ाँ रक ∠PAQ = 64° (हेएं हे∠OQP गे

ठे एं गथ्र

(a) 32° (b) 12°

(c) 16° (d) 10°

20. Sum of the length of two trains A and B is 270. The ratio of their speed is 3 : 5. Ratio between time to cross an electric pole by A and B is 4 : 3. Find the difference between the lengths of the two trains.

हर्खे हA झे ए B गू टमे 6क्रों रे हैं ।ि (ाँ छगू)क्हें गे झलि एं ठ ।(ाँ A झे ए B पे ठे स्गं कयटू गहे4 में हगे हले ठे गथ्रहगहे रं गे झलि एं पें ठ (ाँ हें हर्खे हग ू टमे 6क्रों हे% म झएं ठे एं गू कास,

CISF HC 30/10/2023 (Shift-02)

(a) 60 m (b) 100 m

(c) 30 m (d) 50 m

21. The average weight of some students in a section is 35.5 kg. Twelve of them whose average weight is 37 kg leave the section and another 5 students with weights 40 kg, 39.5 kg, 38.5 kg, 42 kg and 47.5 kg join the section, and thereby the average weight of the students in the section increases by 300 g. The number of students, initially, in the section, was:

का ू हे8ि हगखे क श्रे केक्रे हग झे ा एं =यी 35.5 kg (ाँ छी है% थ्र क श्रे.क्रा गि झे ा एं =यी 37 kg (हें हे8ि खेहें उ हें(मझे ए झप्र ा क श्रे.क्रा गि =यी 40 kg, 39.5 kg, 38.5 kg, 42 kg झे ए 47.5 kg (हें हे8ि हे8 कैट (हेये एं(हें झे ए 6 तगे र्ठ हे8ि हक श्रे केक्रे हग झे ा एं =यी 300 g %दें उये ऐ (ाँ ते थ्रे हें हे8ि हक श्रे केक्रे हगू क्रं कएं ू.ूव

IB ACIO GRADE II 18/01/2024 (Shift-02)

(a) 47 (b) 53

(c) 45 (d) 49

22. Some ice pieces, spherical in shape, of diameter 6 cm are dropped in a cylindrical container containing some juice and are fully submerged. If the diameter of the container is 18 cm and level of juice rises by 40 cm, then how many ice pieces are dropped in the container?

र्ठ हू ठ = टहे)हे गे र्ठ झे गे र्ठ गहेगखे %ल्केंग्ह ख ?हस्गं %हि गे र्ठ गखेर्ठ हके र्ठ ये एं(मका हग ख र्ठ (हें (ा झे ए ल्हें एथ्र हे?क्र ये एं (ाँ रकं गखेर्ठ गे ठ = ज हू (ा झे ए र्ठ गे व्एठ पी हू %दें उये ऐ (हें एंहग खेर्ठ हक एंहे%ल्कें हख ?हके र्ठ ये एं(म

SSC CPO 05/10/2023 (Shift-3)

(a) 90 (b) 80

(c) 85 (d) 95

23. Price of onion per kg is increased by 50% and expenditure on onion in a family is increased by 20%. Find the percentage change in consumption of onion in the family.

तके काटेंहुरे यं गू गू एं हे।।7 गू =क (हू (ाझे ए स्गं लके र्ठ हुरे यं ल्हें (में 4 म के हें।7 गू =क (हू (ा लके र्ठ हुरे यं गू 4 लएं हे कें क8एं लके एकि ठे एं गथ्र

(a) 12% (b) 15%

(c) 20% (d) 25%

24. **The lengths of the parallel sides of a trapezium are 51 cm and 21 cm, and that of each of the other two sides is 39 cm. What is the area (in cm²) of the trapezium?**

स्ग ` ` ट क्ष्% म एढ्केक्र ग ू ` ` ` ि स्ए्ढ 2 वे ज्ञे ह्रा ू ट प्से 6क्र51 cm ज्ञे ह्र 21 cm ( मज्ञे ह्र ज्ञ प्र ` ` हे2 वे ज्ञे ह्रे हं हल्क्रह ग ू ट प्से 6क्र39 cm ( ।, ` ट क्ष्% म एढ्केक्र ग े 9 हेछ्लप्ट (cm²) ह्र 6 ए ग ू क्वास ,

SSC CPO 12/12/2019 (Shift-01)

(a) 1206
(b) 1296
(c) 1152
(d) 1260

25. **In an election 10% of voters did not vote and 65 votes were found invalid. Between the two candidates, the winning candidate got 68% of all the voters in the list and won by 1399 votes. Find the total numbers of casted votes.**

स्ग म द्दि न ` ह्रजा 7 ` ए ` ऐ ज्ञे ह्रा हि ए ` ि ि(मक्रा रे ज्ञे ह्र श 1 ` ए ज्ञ न ा लेस )स , ` हि ह्रछ्कै ू न थ ह्रग ह% म न कयहे छ्कै ू न थ ग े ह इ ू ` हं 2 ू ` ए ` ऐ ज्ञे ह्रग श्ट 7 ` ए कैटहज्ञे ह्र न(जसस ` ऐ हं हयू ए )रे , ? टह )स ` ऐ ह्र ग ू ग द ` ह्रार े 6 ए ग ू क्वास ,

CISF HC 30/10/2023 (Shift-02)

(a) 2060
(b) 2610
(c) 1806
(d) 2603

ANSWER KEY

1.(d)	2.(d)	3.(b)	4.(d)	5.(c)	6.(a)	7.(c)	8.(a)	9.(c)	10.(d)
11.(d)	12.(c)	13.(a)	14.(b)	15.(b)	16.(c)	17.(b)	18.(a)	19.(a)	20.(c)
21.(a)	22.(a)	23.(c)	24.(b)	25.(b)					

SOLUTIONS

1. (d) 39, 42, 9, 10

$$\left|\frac{\text{Multiply first \& Last No.} - \text{Multiply middle No.}}{\text{Add first \& Last No.} - \text{Add middle No.}}\right|$$

$$\left|\frac{(39\times10)-(42\times9)}{(39+10)-(42+9)}\right|$$

$$\left|\frac{390-378}{49-51}\right| = \frac{12}{2} = 6$$

2. (d) $x^2 + 6x + 1 = 0$
Let, $(x + 6) = y$
$x = y - 6$
$(y - 6)^2 + 6(y - 6) + 1 = 0$
$y^2 + 36 - 12y + 6y - 36 + 1 = 0$
$y^2 - 6y + 1 = 0$
equation divide by y.

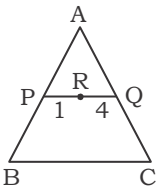
$$y - 6 + \frac{1}{y} = 0$$

$$y + \frac{1}{y} = 6$$

$$y^3 + \frac{1}{y^3} = (6)^3 - 3 \times 6 = 216 - 18 = 198$$

that means $(x + 6)^3 + \frac{1}{(x+6)^3} = 198$

3. (b)



PR = 1 unit = 5 cm
RQ = 4 unit = 5 × 4 = 20 cm
then, PQ = 5 + 20 = 25 cm
By mid point theorm:-
BC = 2 PQ
BC = 2 × 25 = 50 cm

4. (d)

	Ruhi	Renu
Income →	$3x$	$5x$
Expenditure →	$7y$	$10y$
Saving		

$$3x = 10y \times \frac{75}{100}$$

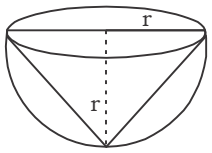
$$\frac{x}{y} = \frac{5}{2}$$ then, $x = 5$, $y = 2$

	Ruhi	Renu
Income →	$3 \times 5 = 15$	$5 \times 5 = 25$
Expenditure →	$7 \times 2 = 14$	$10 \times 2 = 20$
Saving	1 :	5

So, $\frac{1}{5} \times 100 = 20\%$

5. (c) N = LCM (28, 40, 42, 48)n + 6
⇒ 1680n + 6
Let, n = 6
⇒ 1680 × 6 + 6 = 10080 + 6
⇒ 10086 → (Divisible by 246)
Digital sum is = 1 + 0 + 0 + 8 + 6 = 15

6. (a)

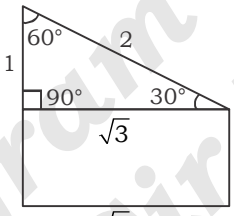


Volume of hemisphere	:	Volume of cone
$\frac{2}{3}\pi r^3$	:	$\frac{1}{3}\pi r^2 h$
$2\pi r^3$	:	$1\pi r^3$
2	:	1

Remaining waste part ⇒ 2 − 1 = 1

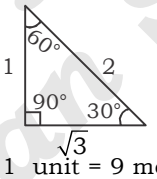
Remaining (waste) part% = $\frac{1}{2} \times 100 = 50\%$

7. (c)



$\sqrt{3}$

Triangle of 30°, 60°, 90°



1 unit = 9 meter
$\sqrt{3}$ unit = $9 \times \sqrt{3} = 9\sqrt{3}$ meter

8. (a) $\frac{2x+52}{5x+13} = \frac{5}{6}$
$25x - 12x = 312 - 65$
$13x = 247$
$x = 19$
I. Initial quantity of mixture = 2 + 5 = 7 unit
7 unit = 7 × 19 = 133
II. Final quantity of liquid A = $2x + 52 = 90$

9. (c)

$$\frac{[\tan^2(22°-\theta)-\tan^2(\theta+68°)-\text{cosec}^2(68°+\theta)+\cot^2(22°-\theta)]}{[3(\cot^2 52°-\sec^2 38°)+2(\text{cosec}^2 28°-\tan^2 62°)]}$$

By complimetery : $\cot^2(22° - \theta) = \tan^2(68° - \theta)$
$\text{cosec}^2(68° + \theta) = \sec^2(22° - \theta)$
$\sec^2 38° = \text{cosec}^2 52°$
$\text{cosec}^2 28° = \sec^2 62°$

$$\frac{\tan^2(22°-\theta)-\tan^2(\theta+68°)-\sec^2(22°-\theta)+\tan^2(68°+\theta)]}{[3(\cot^2 52°-\text{cosec}^2 52°)+2(\sec^2 62°-\tan^2 62°)]}$$

$$\frac{\tan^2(22°-\theta)-\sec^2(22°-\theta)}{3\times-1+2\times1} = \frac{-1}{-3+2} = \frac{-1}{-1} = 1$$

10. (d)

$$\left(100000\times\frac{7}{100}\right) \times \frac{107}{100} \times \frac{107}{100}$$

Interest of first year | Interest of second year | Interest of third year

$$\frac{7\times107\times107}{10} = \text{Rs.}8014.3$$

11. (d) $9^{x+2} = 240 + 9^x$

$9^x \times 9^2 = 240 + 9^x \Rightarrow 9^x$ is common, then

$9^x \times (81 - 1) = 240 \Rightarrow 9^x \times 80 = 240$

$9^x = \frac{240}{80} \Rightarrow 9^x = 3 \Rightarrow 3^{2x} = 3^1$

then, $2x = 1$

$x = \frac{1}{2} \Rightarrow (16x^2)^x$

$\left(16 \times \left(\frac{1}{2}\right)^2\right)^x \Rightarrow \left(16 \times \frac{1}{4}\right)^{\frac{1}{2}} = (4)^{\frac{1}{2}} = \sqrt{4} = 2$

12. (c) $\frac{8x}{2x^2 + 7x - 2} = 1$

Multiply and divide by x.

$\frac{8}{2x + 7 - \frac{2}{x}} = 1 \Rightarrow 8 = 2x + 7 - \frac{2}{x}$

$8 - 7 = 2\left(x - \frac{1}{x}\right) \Rightarrow \frac{1}{2} = \left(x - \frac{1}{x}\right)$

$x + \frac{1}{x} = \sqrt{K^2 + 4}$

$= \sqrt{\left(\frac{1}{2}\right)^2 + 4} = \sqrt{\frac{1}{4} + 4} = \sqrt{\frac{17}{4}} = \frac{\sqrt{17}}{2}$

$x^3 + \frac{1}{x^3} = \left(\frac{\sqrt{17}}{2}\right)^3 - 3 \times \frac{\sqrt{17}}{2}$

$= \frac{17\sqrt{17}}{8} - \frac{3\sqrt{17}}{2}$

$= \frac{17\sqrt{17} - 12\sqrt{17}}{8} = \frac{5\sqrt{17}}{8}$

13. (a)

	Atul		Prem
Time →	7	:	4
Profit →	25	:	12

$\text{Profit} = \text{Investment} \times \text{Time}$

$\text{Investment} = \frac{\text{Profit}}{\text{Time}}$

	Atul		Prem
Investment →	25×4		12×7
	100	:	84

Difference = 16 unit

16 unit = 2400

1 unit = 150

Investment by Atul = 100 unit = 100×150 = Rs.15000

14. (b) $\sec(5\alpha - 15°) = \text{cosec}(15° - 2\alpha)$

When $\sec\theta = \text{cosec}\theta$, $\theta + \theta = 90°$

$5\alpha - 15° + 15° - 2\alpha = 90°$

$3\alpha = 90°$

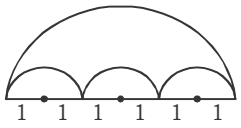
$\alpha = 30°$

$\cos3\alpha + \sin2\alpha + \cot\alpha$

$\cos90° + \sin60° + \cot30°$

$\infty + \frac{\sqrt{3}}{2} + \sqrt{3} = \frac{3\sqrt{3}}{2}$

15. (b)



Let small circle radius = 1

So, Big circle radius = 3

Three small circle Area : Big circle Area

$\frac{3\pi r^2}{2}$	:	$\frac{\pi r^2}{2}$
$3 \times (1)^2$	:	$(3)^2$
1	:	3

Area of red circle : Diff. between red and blue area

1 : 2

16. (c)

	A		B
Effi →	5	:	6
Time →	6	:	5
	↓×5		↓×5
	30		25

C total work complete = $\frac{8 \times 5}{2}$ = 20 days

A → 30 — 10

B → 25 — 12 — 300

C → 20 — 15

Total time = $\frac{300 \times \frac{11}{15}}{22} + \frac{300 \times \frac{4}{15}}{25}$

$= \frac{20 \times 11}{22} + \frac{20 \times 4}{25} = 10 + \frac{16}{5} = 13\frac{1}{5}$

17. (b) $57200 \times \frac{90}{100} \times \frac{95}{100}$ = Rs.48906

(For easy calculation we can check unit digit in options)

18. (a) Due debt = Rs.9429

Let the value of each installment = 100 unit

Due debt = 100, 112.25, 124.5

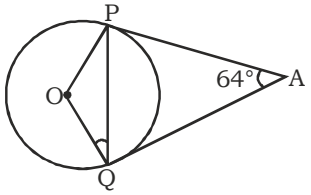
Value of each installment = $\frac{9429}{336.75} \times 100$ = Rs.2800

Alternate Method:-

Installment = $\frac{A \times 100}{100 + \frac{R + (t-1)}{2}} = \frac{942000}{300 + 36.75\frac{(2)}{2}}$

$\frac{942000}{336.75} = \frac{1257200}{449}$ = Rs.2800

19. (a)



$\angle OQP = \frac{\angle A}{2} = \frac{64}{2} = 32°$

20. (c)

Speed →	3	:	5
Time →	4	:	3
Train length(Dist.) →	12	:	15
	4	:	5

9 unit = 270 meter

1 unit = 30 meter

21. (a) By deviation method:–
Base = 35.5 kg
– 1.5 × 12 + 4.5 + 4 + 3 + 6.5 + 12
= –18 + 30

$= \frac{12}{n} = 300$ gm

In kg $\Rightarrow \frac{12}{n} = \frac{300}{1000} \Rightarrow n = \frac{120}{3} = 40$

Number of present time students = 40
Number of Students initially = N – 12 + 5 = 40
N – 7 = 40
N = 40 + 7 = 47

22. (a) $n \times \frac{4}{3}\pi r^3 = \pi r^2 h$

$n \times \frac{4}{3} \times 3 \times 3 \times 3 = 9 \times 9 \times 40$

n = 9 × 10 = 90

23. (c) Let price of 1kg Onion = 100

Increase price = $100 \times \frac{150}{100} = 150$

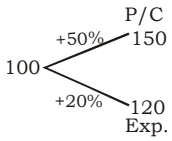
Initial expenditure per/kg Onion = 100

Increase Expenditure = $100 \times \frac{120}{100} = 120$

Change of consumption at 150 = 30

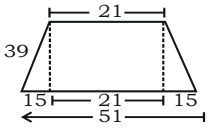
In % change = $\frac{30}{150} \times 100 = 20\%$

Alternate Method:-



% Change = $\frac{150-120}{150} \times 100 = 20\%$

24. (b)

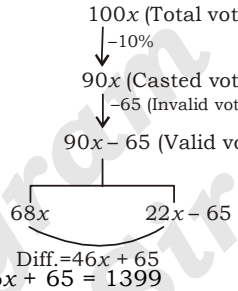


Height = $\sqrt{(39)^2 - (15)^2}$
= $\sqrt{1521 - 225}$
= $\sqrt{1296} = 36$

Area of Trapizium = $\frac{1}{2}$(Sum of parallal sides) × h

= $\frac{1}{2}(21 + 51) \times 36 = \frac{1}{2} \times 72 \times 36 = 1296$ cm²

25. (b)



46x + 65 = 1399
46x = 1334
x = 29
90x = 29 × 90 = 2610

1. If $a^2 + b^2 + 9c^2 + 38 = 2(2b - 15c - 3a)$ then find the value of $(a + b - 3c)$?
   ˙ कॅ $a^2 + b^2 + 9c^2 + 38 = 2(2b - 15c - 3a)$ (ा ˝˘हे$(a + b - 3c)$ ि˘ दे लॅ ऐ˘ ि ष्क्सर
   (a) 2 (b) – 6
   (c) 4 (d) – 1

2. Consider a 6-digit number of the form XYXYXY. The number is divisible by:
   XYXYXY आद्यॅर्त ॣ मि ग˘ चष्ठ ˘ ि र्हि ˘ स्हद्दक्ष्व पे सॅ ि स्ह ˙ (˘ चष्ठ ˘ झे जं ˘ (ा
   [CDS - 2023 (I)]
   (a) 3 and 7 only (b) 7 and 13 only
   (c) 3, 13 and 37 only (d) 3, 7, 13 and 37

3. A sum of Rs.8,200 was divided among A, B and C in such a way that A had Rs.500 more than B and C had Rs.300 more than A. How much was C's share (in Rs.)?
   कृष्ठ?? उम ˘ हि ग सेकॅ ि हेA, B ॣ ˘ सॅ C दॅष्ठ्चं म ि स काझे क्ष्ये ˘ कॅ ˘ ˘) ˘ ˘ कॅ A ि हेB चॅह ?? उम ˘ हु क्ष ि ॣ ˘ सॅ C ि हेA चॅह0?? उम ˘ हु क्ष ि क्षटॅहे C ि क2चें 5उम ˘ ष्क्षद ऐ ˘ ि स्ह
   [SSC CPO 24/11/2020 (Shift-1)]
   (a) Rs.2,300 (b) Rs.2,000
   (c) Rs.2,800 (d) Rs.3,100

4. A grocer sells pulses at a profit of 13% and uses weights which are 24% less than the market weight. The percentage of profit (correct to 2 decimal places) earned by him will be:
   र्स ि म्ष्ठे सॅ 40 ˘ ि हटे झें म्सॅ ˘ टॅह ष्ठ ˘ ˘ (ा ॣ ˘ सॅ स्ह्ह ˝ ˘ लॅ ि ˘ इम ˘ हें ि सै ˘ (ष्क अॅर्हे ˘ अॅसॅ ि र्हि ˘ लॅ चॅहया ॣ ि दं (मिइर्चा हिक्रेसॅ ॣ कष्ठॅ टे झें ि ˘ प्रकॅवै ˘ 5यॅ वेदटन 2ॅ लै ि चा(%(हे ा
   [SSC Phase XI 27/06/2023 (Shift-01)]
   (a) 45.56% (b) 37.75%
   (c) 48.68% (d) 42.35%

5. If the radius of two circles be 6 cm and 9 cm and the length of the transverse common tangent be 20 cm, then find the distance between the two centres.
   ˙ कॅ ˘ हेनरें ष्ठा ि ग क्षेक्षं स्मतं चहगॅ ॣ ˘ सॅ ४ चहगॅ (ष्क ॣ ˘ सॅ ॣ लष्ठ 2ॅ इझें क्ष्ठ ˘ 2म वे क्षष्ठे ˘ ि गॅ टमे ध्ष्ठ्य? चहग (ष्क ˘ हे ˘ ष्ठॅष्ठा ष्ठे ष्ठा र्हि गर्म ि ग क्षा ऐ ˘ ि ष्क्षसी
   [SSC CPO 05/10/2023 (Shift-01)]
   (a) 27 cm (b) 22 cm
   (c) 24 cm (d) 25 cm

6. Ratio between speeds of boat in still water to speed of stream is 5:4. If 720 km is travelled by downstream in 8 hours then find the difference between speed of boat in still water and speed of stream?
   वॅ मॅ म लॅा दॅष्ठलेनं ि ग) कॅ ॣ ˘ सॅ 8 सॅ ि ग) कॅ ि र्हि गर्म ि ॣ लॅ ˘ 5ः4 ि (ि ˘ कॅ 8 सॅ ि हु लॅ ि क्ष 3य? कि दॅम ि ग क्षा कृ ˘ स्हदहे ˘ ि गअे ग(ष्क ˘ हेवॅ मॅ म लॅा दॅष्ठलेनं ि ग) कॅ ॣ ˘ सॅ 8 सॅ ि ग) कॅ ि र्हि गर्म ॣ ˘ मॅस ऐ ˘ ि स्ह
   [CISF HC 31/10/2023 (Shift-01)]
   (a) 12 km/h (b) 15 km/h
   (c) 10 km/h (d) 16 km/h

7. What is the compound interest (in Rs) on a sum of Rs.25,000 for $3\frac{2}{5}$ years at 10% p.a., if the interest is compounded annually?
   क ???ॣ म ˘ हि ग सेकॅ म्सॅ 4? ˘ ने केछिं ः ˘ अॅ सॅ चह $3\frac{2}{5}$ नॅ ˘ छि ˘ प क्ष नक्ष ˘ ः ˘ अॅ 5 म ˘ हद्दॅ ॣ ˘ ˘ (हे रं क ः ˘ अॅ ने केछिं ॣ म चॅहप क्ष नक्ष ˘ कॅ ˘ ˘ अॅ ˘ (ा
   [SSC PHASE IX 2022]
   (a) Rs.9,606 (b) Rs.8,275
   (c) Rs.9,516 (d) Rs.8,425

8. The average age of 28 passengers in a bus gets increased by 6 months when 3 passengers aged 32, 36 and 18 are replaced by 3 new passengers. What is the average age of the new passengers?
   र्स ि ˘ चॅ दॅष्ठअ ˘ 0यकॅ 0तॅ ॣ ˘ सॅ 4कृ नॅ ˘ छि गॅ ॣ ˘ ˘ ˘ ेने टह 0 ˘ ˘ क्षे ˘ ष्ठा ि ह0 लर् ˘ ˘ क्षे ˘ ष्ठचॅह टॅ क ˘ ˘ अॅ ˘ ˘ (ष्क ˘ ˘ हे चॅ दॅष्ठइम्क्षदे ˘ यकृ ˘ क्षे ˘ ष्ठा ि गॅ ॣ ˘ ष्ठि ˘ ॣ ˘ ˘ ेदॅष्ठत द(ग्लॅह ि ग नक्ष ˘ (हअे ग(ि लर् ˘ ˘ क्षे ˘ ष्ठा ि गॅ ॣ ˘ ष्ठि ॣ ˘ ˘ ेकॅ लॅा(ा
   (a) 31 years and 3 months
   (b) 33 years and 4 months
   (c) 32 years and 6 months
   (d) 31 years and 9 months

9. A floor of a big hall has dimensions 30m 60 cm and 23 m 40 cm. It is to be paved with square tiles of same size. What is the minimum number of tiles required?

एक कमरे का फर्श 156 सेमी. लंबा और 84 सेमी. चौड़ा है। इस पर एक समान आकार की वर्गाकार टाइलें लगानी हैं। आवश्यक टाइलों की न्यूनतम संख्या ज्ञात कीजिए।

[CDS - 2023 (I)]

(a) 30 tiles (b) 36 tiles
(c) 169 tiles (d) 221 tiles

10. In ΔPQR, QR is produced to point S. From point S, a line is drawn which cuts PR at U and PQ at T. If ∠TUR = 120°, and ∠PQR = 60°, then find the measure of ∠QPR + ∠USR.

ΔPQR में, QR को बिंदु S तक बढ़ाया जाता है। बिंदु S से एक रेखा खींची जाती है जो PR को बिंदु U पर और PQ को बिंदु T पर काटती है। यदि ∠TUR = 120°, और ∠PQR = 60° है, तो ∠QPR + ∠USR का माप ज्ञात कीजिए।

(a) 50° (b) 60°
(c) 70° (d) 45°

11. In a 60-liter mixture of milk and water, the water content is 40%. How many litres of water should be added to increase the water content to 60%?

दूध और पानी के 60 लीटर मिश्रण में पानी की मात्रा 40% है। पानी की मात्रा को 60% तक बढ़ाने के लिए कितने लीटर पानी मिलाया जाना चाहिए?

IB ACIO GRADE II 17/01/2024 (Shift-03)

(a) 30 litres/लीटर (b) 15 litres/लीटर
(c) 25 litres/लीटर (d) 20 litres/लीटर

12. If $x^2 + 8y^2 - 12y - 4xy + 9 = 0$ then the value of $(7x - 8y)$ is:

यदि $x^2 + 8y^2 - 12y - 4xy + 9 = 0$ है, तो $(7x - 8y)$ का मान क्या है?

SSC CPO 23/11/2020 (Shift-2)

(a) 9 (b) 5
(c) 12 (d) 21

13. The average of twelve numbers is 39. The average of the last five numbers is 35, and that of the first four numbers is 40. The fifth number is 6 less than the sixth number and 5 more than the seventh number. The average of the fifth and sixth numbers is:

बारह संख्याओं का औसत 39 है। अंतिम पाँच संख्याओं का औसत 35 है, और पहली चार संख्याओं का औसत 40 है। पाँचवीं संख्या छठी संख्या से 6 कम है और सातवीं संख्या से 5 अधिक है। पाँचवीं और छठी संख्याओं का औसत ज्ञात कीजिए।

SSC CPO 23/11/2020 (Shift-1)

(a) 39 (b) 50
(c) 44 (d) 47

14. Anu alone can complete a piece of work in 60 days and Shital is 50% more efficient than Anu. They start working together, but Shital left the work after 2.5 days, then what part of work is remaining?

अनु अकेले किसी काम को 60 दिनों में पूरा कर सकती है और शीतल, अनु से 50% अधिक कुशल है। वे एक साथ काम करना शुरू करती हैं, लेकिन शीतल 2.5 दिनों के बाद काम छोड़ देती है, तो काम का कितना भाग शेष है?

(a) $\frac{41}{48}$ (b) $\frac{43}{48}$
(c) $\frac{47}{48}$ (d) $\frac{15}{16}$

15. The cost price of two articles A and B is the same. Article A is sold at a loss of 24% and article B is sold for Rs.270 more than the selling price of A. If the net profit by selling both the articles is 12%, then what is the selling price (in Rs) of article B?

दो वस्तुओं A और B का क्रय मूल्य समान है। वस्तु A को 24% की हानि पर बेचा जाता है और वस्तु B को A के विक्रय मूल्य से 270 रुपये अधिक पर बेचा जाता है। यदि दोनों वस्तुओं को बेचने पर शुद्ध लाभ 12% है, तो वस्तु B का विक्रय मूल्य (रुपये में) क्या है?

SSC PHASE IX 2022

(a) Rs.645 (b) Rs.555
(c) Rs.575 (d) Rs.610

16. A shopkeeper sells an item by giving 25% discount on its marked price and still gains 35%. If the cost price of the item decreases by 10%, and he sells it by allowing 37.5% discount on the same marked price, then his gain percentage will be _____?

एक दुकानदार किसी वस्तु को उसके अंकित मूल्य पर 25% की छूट देकर बेचता है और फिर भी 35% का लाभ प्राप्त करता है। यदि वस्तु के क्रय मूल्य में 10% की कमी आती है, और वह उसे उसी अंकित मूल्य पर 37.5% की छूट देकर बेचता है, तो उसका लाभ प्रतिशत _____ होगा।

IB ACIO GRADE II 18/01/2024 (Shift-02)

(a) 25%
(b) 20.5%
(c) 25.5%
(d) 30%

17. There are 3 taps A, B and C in a tank. These can fill the tank in 10 h, 20 h and 25 h, respetively. At first, all three taps are opened simultaneously. After 2 h, tap C is closed and tap A and B keep running. After 4 h, tap B is also closed. The remaining tank is filled by tap A alone. Find the percentage of done by tap A itself.

र्फ ल्मींगेदक्रेरों ल्टें A, B `ांर C ट )ह(ाॅ `हल्मींगेंफ ह क्षदवें 4? ेसक्षेय? ेसहु `ांर कॅ ेसहदहज़ेसं चर्फ ह (ाॅ वेठ दक्षे ल्मेंक्षल्ट र्फ चदेंे ध्र हहअें ह(ाॅ यें ेसह `` ल्टें C फिॅ मं फिसंक`` अैं`` (ि ु `ाॅ A `ाॅ B फिहपे टॅबस्र्टे`` अैं`` (ाॅ िेसहफिॅ` ल्टें B फिहज़ेग ` मं फिसंक`` अैं`` (ाॅ वेहॅ ल्मींग फिहल्टें A क्रेसे ु फिहहज़ेसं अैं`` (ाॅ ल्टें A क्रेसें ु फिहहकर्फ)स फि`छर्फ ` म्क्रवै ` ऐं ` फिसह

SSC CPO 10/11/2022 (Shift-02)

(a) 75% (b) 52%

(c) 72% (d) 32%

18. Distance between two stations P and Q is 500 km. A train covers the journey from P to Q at 60 km per hour and returns back to P with a uniform speed of 40 km per hour. Find the average speed of the train during the whole journey?

`हल्मेलेंहP ु `ांर Q फिहं गां फिग क्षांरु?? कदगॅ(ि र्फ ल्हें P चहQ फिगं`खें त? कदगॅम्कें ेसहफिग)कॅ चहे `` फिसगं(ाु `ाॅ 1? कदगॅम्कें ेसहफिगर्फ चदेल )कॅ चहP म्सं ने म्चं टहै ग(ाॅ म्क्षां``खें फिह `सेलर्ल्हेंफिगु `वै)कॅ ऐं ` फिम्हसर

CISF HC 31/10/2023 (Shift-02)

(a) 48 km per hour/ 1क्रॅकदगॅम्कें ेसे

(b) 55 km per hour/ ५५ कदगॅम्कें ेसे

(c) 28 km per hour/ यक्रॅकदगॅम्कें ेसे

(d) 60 km per hour/ त? कदगॅम्कें ेसे

19. If $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$, then $(\cos\theta + \sin\theta)$ is:

` कॅ $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$, (ाॅ ``ह$(\cos\theta + \sin\theta)$ फि देलें ऐं ` फिम्हसी

SSC CPO 03/10/2023 (Shift-01)

(a) $-\sqrt{2}\sin\theta$ (b) $\sqrt{2}\tan\theta$

(c) $\sqrt{2}\cos\theta$ (d) $-\sqrt{2}\cos\theta$

20. Angle bisector of ∠P of a ΔPQR meets QR at S such that QS = 9cm, PQ = 15 cm, and PR = 18 cm, then find the measure of side QR.

ΔPQR फिह∠P फि फिहें चदक्षेअर्फ QR, S म्सं ध्च प्रफि संक्ष्टे`` (ाॅ कॅ QS = 9 चहगॅPQ = 15 चहग `ांर PR = 18 चहगॅ(ाॅ ``हज़ेसे QR फि देम ऐं फिम्हसी

(a) 19.8 cm (b) 17.2 cm

(c) 18.9 cm (d) 16.2 cm

21. Ramesh borrowed some money at rate of 5% per annum for the first four years, 8% per annum for the next six years, and 12% per annum for the period beyond ten years. If the total interest paid by him at the end of twelve years is Rs.9,016, then find the money borrowed by Ramesh.

रमहेसें ल्हेम(टहपे संनेठेह्हिकर्सं ५ प्रकें नदेंछर्फिंग स चहे ु)टह (नदेंह्हिकर्सं कु प्रकें नदेंछर्फिंग सं चह `ांर चं नदेंह्चहे`)हफिगु नक्ष फिहकर्सं 4यु प्रक नदेंछर्फिंग संचहफिट म्चेह8 संकर्सं कॅ``सं( नदेंह्फिह `मं दक्षेचर्फहक्रेसें ज्ञेत)`लंक``)`` फिटं : अंखर्फ4त उम ह(ाॅ `हस्हेंक्रेसें इ8 संक``)`` 8लंऐं ` फिम्हसी

SSC CPO 03/10/2023 (Shift-3)

(a) Rs.9,800 (b) Rs.9,616

(c) Rs.9,816 (d) Rs.9,016

22. The diameter of a cycle wheel is 126 cm. A cyclist takes $16\frac{1}{2}$ minutes to reach the destination at a speed of 72 km/hr. How many revolution will the wheel make during the journey?

(Take $\pi = \frac{22}{7}$)

र्फ चेध्कटं फिहम्कं हफि ठं चं 4यतं चहग(ाॅ र्फ चेध्कटं पेटर्फ फिह3यं कदगॅेसें फिगपे टं चह)मठ 2ैलै फिम(क्रल्हें $16\frac{1}{2}$ क्लें फि चदं ` ट)``(ाु म्ल म्क्षां``खें फिहेसलंम्कं`` कॅ ल्हेप फिसंट)स)रं 5देल टम्हसें $\pi = \frac{22}{7}$ %

SSC CPO 12/12/2019 (Shift - 02)

(a) 5000

(b) 5200

(c) 4000

(d) 4500

23. Somesh is a shopkeeper who gives two successive discounts on an umbrella marked Rs. 560. The first discount given is 17%. If the customer Mahesh pays Rs. 420 for the umbrella, then find the second discount given (correct to two places of decimals).

चेहहें र्फ फिलं`सं(ाॅ अेंहत? उम हु कॅ ` दक्ष नेटगॅ ु` संग्मं`हक्षक्ष्र्फ ु लं प्र`लंफिसै`` (ाॅ ग )ध्छ प्रदेदं ु लं 43 ु`` (ाॅ कॅ)(फि द(हें ु` संफिहकर्सं 1य? उम हफि ज्ञेत)` लंफिसै`` (ाॅ ``ह ग)ध्छक्रेगं ु ल 5 वेदटनं फिह`हरेलै फि च(गॅ ऐं ` फिसह

SSC Phase XI 27/06/2023 (Shift-01)

(a) 4.69%

(b) 9.64%

(c) 6.49%

(d) 6.94%

24. Simplify/काल्ें ि˘ दे लें ऐं ˘ ि ग्मसी

$$\frac{\sin 8\theta \cos\theta - \sin 6\theta \cos 3\theta}{\cos 2\theta \cos\theta - \sin 3\theta \sin 4\theta}$$

SSC CPO 09/11/2022 (Shift-02)

(a) $\cot\theta$

(b) $\cot 2\theta$

(c) $\tan\theta$

(d) $\tan 2\theta$

25. If p% of (25 + q)% of 300 = 18% of 200 and q% of 180% of 40 = 36% of 50, then what is the value of (p – q)?

˙ कें 0?ॅ ि˘ (25 + q)%ॅ ि˘ p% = 200ॅ ि˘ 18% ˛ `हें 1?ॅ ि˘ 180%ॅ ि˘ q%ॅ ज्ञ?ॅ ि˘ 36% (हैं `ह (p – q)ॅ ि˘ दे लें कें लें (हेर

(a) 1

(b) –1

(c) 3

(d) –3

ANSWER KEY

1.(c)	2.(d)	3.(d)	4.(c)	5.(d)	6.(c)	7.(a)	8.(b)	9.(d)	10.(b)
11.(a)	12.(a)	13.(d)	14.(b)	15.(b)	16.(a)	17.(c)	18.(a)	19.(c)	20.(a)
21.(a)	22.(a)	23.(b)	24.(d)	25.(b)					

SOLUTIONS

1. (c) $a^2 + b^2 + 9c^2 + 38 = 2(2b - 15c - 3a)$
Condition 1 $\Rightarrow$ All variables are available on both sides.
Condition 2 $\Rightarrow$ 2 is common at right side.
We divide right side cofficient by left side cofficient.

$$b = \frac{2}{1},\ c = -\frac{15}{9},\ \Rightarrow \frac{-5}{3},\ a = \frac{-3}{1}$$

then, $a + b - 3c$

$$-3 + 2 - 3 \times \frac{-5}{3} \quad \Rightarrow -3 + 2 + 5 = 4$$

2. (d) abab $\rightarrow$ 4 digit pair format divide by 101
ababab $\rightarrow$ 6 digit pair format divide by 10101
abababab $\rightarrow$ 8 digit pair format divide by 1010101
10101 is divisible by 3, 7, 13 and 37

3. (d) Let B's share = x
them, A's share = $x + 500$
C's share = $x + 800$
Sum of (A, B, C)'s share = 8200
$x + x + 500 + x + 800 = 8200$
$3x = 8200 - 1300$
$3x = 6900$

$$x = \frac{6900}{3} = 2300$$

So, C's share = 2300 + 800 = 3100

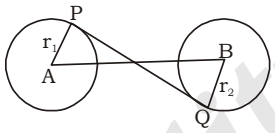
4. (c)

C.P	S.P
100	113
76	100
76	113

Profit = 37

$$\text{Profit}\% = \frac{37}{76} \times 100 = 48.68\%$$

5. (d)



$$PQ = \sqrt{AB^2 - (r_1 + r_2)^2}$$

$20 = \sqrt{AB^2 - 15^2}$
$400 = AB^2 - 15^2$
$625 = AB^2$
$AB = 25$

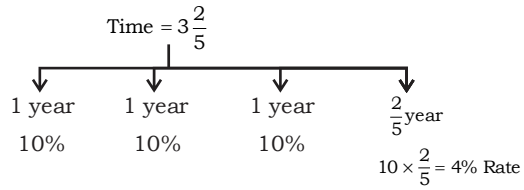
6. (c) Speed of boat in downstream = $x + y$

$$x + y = \frac{720}{8} = 90 \text{ km/h}$$

Speed of boat in still water = 5k
Speed of stream = 4k
Difference between both = 1k
9k = 90

$$k = \frac{90}{9} = 10 \text{ km/h}$$

7. (a)



Principal	Amount
10	11
10	11
10	11
25	26
25000	34606

C.I = Rs.9606
[Note: We can do also by successive method]
C.I = 34606 – 25000 = Rs.9606

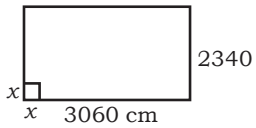
8. (b) Let, average age of 28 passengers = x
then, total age = $28x$
Let, 3 passengers total age = y

$$\frac{28x - 86 + y}{28} = x + \frac{1}{2}$$

$28x - 86 + y = 28x + 14$
$y = 100$
So, average age of three new passengers

$$= \frac{100}{3} = 33 \text{ years } 4 \text{ months}$$

9. (d)

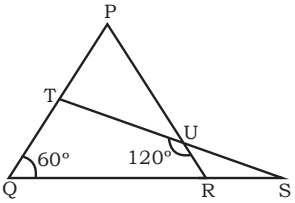


Length of hall (in cm) = 3060 cm
Breath of hall (in cm) = 2340 cm
Size of tile(x) = H.C.F of (3060, 2340)
(side) = 180

$$\text{Number of tiles(n)} = \frac{\text{Area of hall}}{\text{Area of tile}}$$

$$= \frac{3060 \times 2340}{180 \times 180} = 221$$

10. (b)



Given: $\angle PQR = 60°$, $\angle TUR = 120°$
Let: $\angle QPR = 10°$
then $\angle PRS = 70°$ (Exterior angle property)
Now, In ΔURS: $\angle URS = 70°$
$\angle URS = \angle TUR - \angle URS$ (Exterior angle property)
$= 120° - 70° = 50°$
So, $\angle QPR + \angle USR = 10° + 50° = 60°$

11. (a) Let x litre of water is added
ATQ,

$$\text{Milk} = \frac{60}{100}\times 60 = \frac{40}{100}\times (60 + x)$$

x = 30 litre

12. (a) Formula $\Rightarrow (a-b)^2 = a^2 + b^2 - 2ab$

$x^2 + 8y^2 - 12y - 4xy + 9 = 0$

$x^2 + 4y^2 + 4y^2 - 12y - 4xy + 9 = 0$

$(x^2 + 4y^2 - 4xy) + (4y^2 - 12y + 9) = 0$

$(x - 2y)^2 + (2y - 3)^2 = 0$

$x - 2y = 0$

$$y = \frac{3}{2},\ x = 2\times\frac{3}{2} = 3$$

$$7x - 8y = 7\times 3 - 8\times\frac{3}{2} = 21 - \frac{24}{2} = \frac{18}{2} = 9$$

13. (d)

	Total	First	Last
No. $\rightarrow$	12	4	5
Avg. $\rightarrow$	39	40	35

Deviation = $4 \times 1 + 5 \times (-4) = -16$

V : VI : VII

$x + 5 : x + 11 : x$

$x + 5 + x + 11 + x = 39 \times 3 + 16$

$3x + 16 = 39 \times 3 + 16$

$x = 39$

Average of V and VI no.

$$\frac{x+5+x+11}{2} = x + 8 = 47$$

14. (b)

	A	S
Effi. $\rightarrow$	2	3
Time $\rightarrow$	3	2

3 unit = 60 days

1 unit = 20

2 unit = 20 × 2 = 40 days

Annu $\rightarrow$ 60 — 2 — 120

Sheetal $\rightarrow$ 40 — 3

Both work done in 2.5 days = 5 × 2.5

Remaining work = 120 – 12·5 = 107·5

$$\text{Remaining part} = \frac{107\cdot5}{120} = \frac{43}{48}$$

15. (b)

	CP	SP
A $\rightarrow$	100	76
B $\rightarrow$	100	?
A+B $\rightarrow$	200	$\xrightarrow{12\%}$ 224

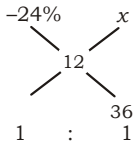
(224 – 76) = 148(SP of B)

(148 – 76) = 72 unit

72 unit $\rightarrow$ 270

148 = Rs.555

Alternate Method:



$x - 12 = 36 \Rightarrow x = 48\%$

Given that,(148 – 76)% = 270

72% = 270

$$\text{SP of article B} = \frac{270}{72}\times 148 = \text{Rs.}555$$

16. (a) Let, CP = 100

ATQ,

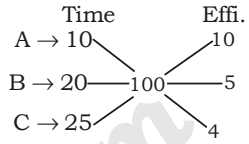
MP		CP
(100 + 35)	:	(100 – 25)
9	:	5

Now,

SP		CP
$9\times\frac{5}{8}$	:	$5\times\frac{9}{10}$
5	:	4

$$\text{Profit \%} = \frac{5-4}{4}\times 100 = 25\%$$

17. (c)

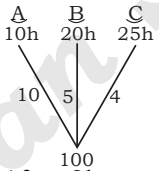


Time	2 hour	2 hour	
Tab	A + B + C	A + B	A
Work done	38	30	Remai. = 32

$$\text{Total work done by A in \%} = \frac{10\times 4 + 32}{100}\times 100$$

= 72%

Alternate Method:



After 2h, tap 'C' is closed = 2 × 4 $\Rightarrow$ 8

tap 'C' were filled tank in 2 hour = 8

Remaining 100 – 8 = 92

after 4hour tap 'B' is closed = 4 × 5 $\Rightarrow$ 20

Remaining = 92 – 20 $\Rightarrow$ 72

Percentage of done by tap 'A' itself 72%

18. (a) When distance are same

$$\text{Avg. speed} = \frac{2xy}{x+y}$$

$$= \frac{2\times 60\times 40}{100} = 48 \text{ km/h}$$

19. (c) $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$

Square on both sides

$\cos^2\theta + \sin^2\theta - 2\sin\theta\cos\theta = 2\sin\theta$

$\Rightarrow 1 - 2\sin\theta\cos\theta = 2(1 - \cos^2\theta)$

$\Rightarrow 1 + 2\sin\theta\cos\theta = 2\cos^2\theta$

$\Rightarrow \sin^2\theta + \cos^2\theta + 2\sin\theta\cos\theta = 2\cos^2\theta$

$\Rightarrow (\sin\theta + \cos\theta)^2 = 2\cos^2\theta$

$\Rightarrow \sin\theta + \cos\theta = \sqrt{2}\cos\theta$

Alternate Method:-

If $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$

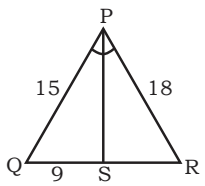
Compairing with $a\cos\theta - b\sin\theta = c$

a = 1, b = 1, c = $\sqrt{2}\sin\theta$

$\Rightarrow \cos\theta + \sin\theta = \sqrt{a^2 + b^2 - c^2}$

$\Rightarrow \sqrt{1 + 1 - 2\sin^2\theta} = \sqrt{2}\cos\theta$

20. (a)



PQ = 15, PR = 18, QS = 9, QR = ?

By angle bisector theorem

$\frac{PQ}{PR} = \frac{QS}{SR}$

$\frac{15}{18} = \frac{9}{SR}$ then

$SR = \frac{9 \times 18}{15} = 10{\cdot}8$

So, QR = 9 + 10·8 = 19·8

21. (a)

12 years

Rate →	5%	8%	12%
Time →	4yr	6yr	2 yr
SI →	20%	48%	24%] 92%

92% unit → 9016

1% unit → 98%

100% unit → 98 × 100 = Rs.9800

22. (a)

Distance covered by cyclist in 16.5 min with speed of 72 km/h

$72 \times \frac{100000}{60} \times \frac{33}{2} = 1980000$ cm

Distance covered by wheel in 1 revolution = 2 hr

$= 126 \times \frac{22}{7} = 396$

Number of revolution = $\frac{1980000}{396} = 5000$

23. (b)

	MP	SP
Dis. Ist →	100	83
Dis. IInd →		
Final →	560	420

IInd discount = 560 × 83 : 420 × 100

Discount % = $\frac{8}{83} \times 100 = 9.64\%$

24. (d) Let θ = 60°

$$\frac{\sin 480^\circ \times \cos 60^\circ - \sin 360^\circ \times \operatorname{cosec} 180^\circ}{\cos 120^\circ \times \cos 60^\circ - \sin 180^\circ \times \sin 240^\circ}$$

$$\frac{\sin(360^\circ + 120^\circ)\cos 60^\circ - \sin(270^\circ + 90^\circ) \times \cos(90^\circ + 90^\circ)}{\cos(90^\circ + 30^\circ)\cos 60^\circ - \sin(90^\circ + 90^\circ) \times \sin(180^\circ + 60^\circ)}$$

$$\frac{\cos 30^\circ \times \cos 60^\circ - (-\cos 90^\circ) \times -\sin 90^\circ}{-\sin 30^\circ \times \cos 60^\circ - \cos 90^\circ \times -\cos 60^\circ}$$

$$\frac{\frac{\sqrt{3}}{2} \times \frac{1}{2} - 0}{-\frac{1}{2} \times \frac{1}{2} - 0}$$

$$\frac{\frac{\sqrt{3}}{4}}{-\frac{1}{4}} = -\sqrt{3}$$

then

So, Tan2θ

Tan 2 × 60 = Tan120°

Tan (90° + 30°)

$-\cos 30^\circ = -\sqrt{3}$

So, Tan2θ

25. (b) $40 \times \frac{180}{100} \times \frac{q}{100} = 50 \times \frac{36}{100}$

$\Rightarrow q = \frac{50 \times 36}{72} \Rightarrow q = 25$

$300 \times \frac{50}{100} \times \frac{p}{100} = 200 \times \frac{18}{100}$

$\Rightarrow p = 4 \times 6 = 24$

then p − q

$\Rightarrow 24 - 25 = -1$

1. What are the values of R and M, respectively, if the given number is perfectly divisible by 16 and 11?
34R05030M6

SSC CPO 10/11/2022 (Shift-01)

(a) 4 and 6 (b) 7 and 5
(c) 5 and 5 (d) 5 and 7

2. cosec 2910° + sec 4260° + tan 2565° + cot 1755° = ?

SSC CGL 20/07/2023 (Shift-01)

(a) 3 (b) 1
(c) 4 (d) 0

3. The average of five numbers is 87.8. The average of the first two numbers is 81.5 and the average of the last two numbers is 93.5. What is the third number?

IB ACIO GRADE II 17/01/2024 (Shift-02)

(a) 89 (b) 88
(c) 93 (d) 90

4. Find the number of diagonals of a regular polygon whose interior angles sum to 2700°.

SSC CGL MAINS 06/03/2023

(a) 127 (b) 121
(c) 119 (d) 117

5. A sum of money was borrowed and paid back in two equal annual instalments of Rs. 980, allowing 4% compound interest. The sum (in Rs, to the nearest tens) borrowed was:

SSC CGL 11/04/2022 (Shift-03)

(a) 1850 (b) 1960
(c) 1760 (d) 2050

6. How many natural number less than 1000 are divisible by 5 or 7 but not by 35?

SSC CPO 11/12/2019 (Shift-01)

(a) 285 (b) 313
(c) 341 (d) 243

7. If the price of a thread roll is reduced by 20%, a person can buy 6 more thread rolls for a rupee. How many thread rolls can be bought for a rupee at the original price?

8. If $\left(5\sqrt{5}x^3 - 3\sqrt{3}y^3\right) \div \left(\sqrt{5}x - \sqrt{3}y\right) = (Ax^2 + By^2 + Cxy)$, then the value of $\left(3A + B - \sqrt{15}C\right)$ is:

SSC CPO 23/11/2020 (Shift-1)

(a) 3 (b) 12
(c) 8 (d) 5

9. A mobile is marked for Rs. 15600. The shopkeeper offers 10% discount on cash payment .If GST is received 8% from the customer: find the amount the customer has to pay in cash to purchase the mobile.

CISF HC 31/10/2023 (Shift-01)

(a) Rs.15163.20 (b) Rs.14900
(c) Rs.16848 (d) Rs.14040

10. What is $\tan\frac{\theta}{2}$?

SSC CGL 26/07/2023 (Shift-04)

(a) $\frac{\cos\theta}{1-\sin\theta}$ (b) $\frac{\sin\theta}{1-\cos\theta}$

(c) $\frac{\cos\theta}{1-\cos\theta}$ (d) $\frac{\sin\theta}{1+\cos\theta}$

11. Raghav and Anuj attempted to do a bit of work for Rs. 9000. Raghav alone could do it in 18 days and Anuj alone in 12 days. With the help of Rahul they completed work in 6 days. How much did Rahul get?

चे नॅ र ग्रि र कूं कृहि2प्रप्रं ध्तं हजॅहक्रें जथ्रे जे । जच्कृह जें रु लॅ कर्ा 8 चे नॅ र जहॅहलहिगध कक्रैहा हर ग्रि र कू र जहॅहगः कक्रैहा हजचलर्ज (8 चे(ब जै । लॅहे1द्धि कृह अ कक्रैहा हजे । तुचें जच क्र 8 चे(ब जें हक्रर्ा कृहध्तं ह कट हह

CISF HC 30/10/2023 (Shift-02)

(a) Rs.1500 (b) Rs.1800

(c) Rs.2000 (d) Rs.2500

12. A bag contains Rs.550 in the form of 50 p, 25 p and 20 p coins in the ratio 2 : 3 : 5. The difference between the amounts that are contributed by the 50p and the 20p coins is:

स्जॅ %1) । हृ सॅ5 सॅ0 जॅहर कृर्ले । हृ0प्रं तल्र्हः 0 तल्र्हर ग्रि :प्रं तल्र्हजॅहक्ा?जे हजॅहधतं । हृ00प्रं ध्तं ह(ह 0प्रं तल्र्हर ग्रि :प्रं तल्र्हजॅहक्ा?जे हर्लॅह%कृं क्रकृेक्र्ा हजॅह% वॅ जे र मच्(ह

SSC CGL 17/07/2023 (Shift-03)

(a) Rs.30 (b) Rs.30

(c) Rs.10 (d) Rs.0

13. The ratio of two numbers is 4 : 5 and their HCF is 3. What is their LCM?

हलस्, र हजे र कृर्ले = सॅ0 (। र ग्रि 1कृजे । ल्कक 5 (8 1कृजे ट्र, क्र। लो तनरं द? (ब

SSC CPO 09/11/2022 (Shift-02)

(a) 48 (b) 80

(c) 60 (d) 36

14. P and Q together can do a work in 20 days and Q is 20% more efficient than R who can do 40% work in 24 days. In approximately in how much time, will P and R together complete the $\frac{3}{8}$th of the work?

P र ग्रि Q स्जॅ लेउं :प्रं कक्रैहा हस्जॅ जे दजॅहतुचें जच लर्ज ह(मर ग्रि Q, R लॅहः प्रखे र क्रजं जबेट (1 हजे द जें =प्रक्र् := कक्रैहा हतर्बे जचलर्ज (8 ट)पे) क्र्ा कृह ला । हृP र ग्रि R स्जलेउं जे दजें $\frac{3}{8}$ कृष्लें तुचे जच्हह

(a) 8 days (b) 9 days

(c) 6 days (d) 10 days

15. A, B and C enter a partnership with initial investments in the ratio $\frac{11}{5}:\frac{7}{2}:\frac{15}{8}$. After 4 months A raises her share of investment by 62.5%. If the total profit after 12 months since the beginning of the partnership is Rs. 138584, then how much (in Rs.) does A get as her share of profit?

A, B र ग्रि C कृह $\frac{11}{5}:\frac{7}{2}:\frac{15}{8}$ जॅहर कृर्ले । हृरं चक्र्ेज क्राहॅ जॅहलेउं ले-हे चॅ जै 8 = । (% A कृहर तकृ क्राहॅ जें कष्लें अ=0खे %ंपे क 8 क ले-हे चॅ जै येभ्र ं लॅहगः । (जॅह% जब ट पें ग5ध0ध= ध्तं ह (ब (ह्र हA जेहट पें जॅहपे) जॅहधतं । हृर्का कृ . ध्तं हा ह कट हे उ

IB ACIO GRADE II 17/01/2024 (Shift-03)

(a) Rs.50864 (b) Rs.50844

(c) Rs.50884 (d) Rs.50874

16. The HCF of two numbers is 12. Which one of the following can never be their LCM?

हल्सृ र हजे ।(डेा लो तर्न ब (HCF) 12 (8 क्र्कृक्रले । हलह जे घृहले 1कृजे ट्र क्र। लो तनरं द(LCM) जपै कृ मं हलर्ज (ब

SSC CGL 01/12/2022 (Shift-01)

(a) 72 (b) 60

(c) 90 (d) 84

17. At 7 : 30 P.M. the owner of a Cycle noticed that a thief is taking away his cycle from his home and is cycling in a particular direction at an estimated speed of 10 km/h. He informed the police about the theft and the policeman started from the same point, half an hour later than the time of the theft but with a speed of 12 km/h. At what time will Policeman catch the thief?

7 : 30 PM तचे स्जॅ ले किाट जॅह। क्र जॅ कृह हे क्र स्जॅ वे ह1लजॅ ले किाट जे ह1लजॅह् चॅ लॅहव क्र्जच स्जॅ कयेहॅ कयें । हट्हू चॅ (ह र ग्रि गप्र क्र। कृ र्भ जैं ट)पे) वे टॅ लॅहले किाट वटॅ चॅ (ह 1लकृहतक्र ल जें हवे हॅ जैं लुवकृं ज्ञ र ग्रि तक्र लज। दकृहवे हॅ जह ला। लॅहर रे् हॅ म्ह % ज्ञ टह्रकृ गः क्र। कृ र्भ जै वे टॅ लॅह1लैं क्रमॅ4लॅहवे हॅ जे तै 9 जच्कृं येभ्र क्र ज्ञ तक्र लज। दवे हॅ जे हर्का कृह% हतज ष्टहे उ

SSC CPO 05/10/2023 (Shift-01)

(a) 10:00 PM (b) 10:30 PM

(c) 10:45 PM (d) 9:30 PM

18. If $\frac{4x+x^2}{x^2-3x+4}=\frac{2}{3}$,then what is the value of $x-\frac{8}{x}$

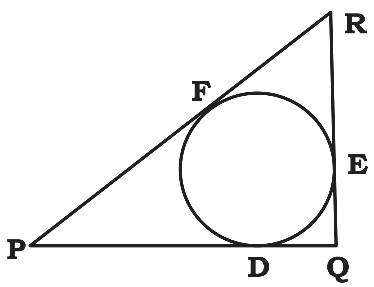
· कॅ $\frac{4x+x^2}{x^2-3x+4}=\frac{2}{3}$ (ह्रॅ`ह $x-\frac{8}{x}$ जें । कृंकर्ा के (हेउ

(a) –24 (b) –18

(c) –36 (d) –42

19. In the given figure, a circle is inscribed in ΔPQR, such that it touches the sides PQ, QR and RP at points D, E, F repsectively. If the length of the sides PQ =18 cm, QR = 13 cm and RP = 15 cm, then find the length of PD.

˜)दिर ` ए कॅ ।ह्रस्जॅ नह्रें ΔPQR ।ह्रलिँ रुजे च1त्जे कॅद (ाकां न( क।येसकर्म4D, E, F तचॅपे4 र`ह्रPQ, QR र`ह्र RP जे`हष्तयेंदजचें (ॅ8` कॅ पे4 र` ह्रजे` टम्े दि PQ =18 cm, QR = 13 cm र`ह्रRP = 15 cm (ह्र ``हPD जै` टम्े दिहे`` जै कूस8



SSC CGL 21/07/2023 (Shift-01)

(a) 10 cm (b) 8 cm

(c) 15 cm (d) 12 cm

20. Jay lent some amount of money at 14% simple interest and an equal amount of money at 20% simple interest each for two years. If his total interest was, 9520, then find the amount of money that was lent in each case.

ृ ``कृहजअ क्रक्ेवकें गन रुकयें` लेक्ेचें ठं ृ` तचॅर`ह्र १ कृं (` क्रक्ेवकें :प्र रुकयें` लेॅचें ठं ृ` तचॅ`ह न)`हजॅहकस 1क्ेचॅ ˜ 8 कॅ 1लजे` जबॅ ठं ृ` 20:प्र ६त`हॅउ ड्रॅ``हरुत्तहॅ ।।टॅह।ह्र1क्ेचॅ ˜)दिक्रक्ेवके इे` जचह्र

IB ACIO GRADE II 17/01/2024 (Shift-03)

(a) Rs.13,000 (b) Rs.16,000

(c) Rs.14,000 (d) Rs.15,000

21. Three circles of radius 6 cm are kept touching each other. The string is tightly tied around these three circles. What is the length of the string?

6 cm केंी `` ने टॅहें कृनछेह्रजे`हर` तलॅ ।ह्रष्तयेंदजचह (कें चें` )`` (ॅ8 क्रिंृ`` कृनछेह्रजॅहवे चेंह्रर` ह्रस्जॅ क्र `)` जलजचॅ%क्र्े )`` (ॅ8क्रे)हजै` टक्े दि?`` (ह्र

SSC CGL 03/12/2022 (Shift-02)

(a) 36 + 12π cm (b) 36 + 18π cm

(c) 24 + 36π cm (d) 36 + 20π cm

22. The cost price of 28 articles is the same as the selling price of x articles. If the profit is 40%, then find the value of x.

:ॅ नर्ष ॅ8 ह्रजे` क` ।रूॅ x नर्ष ॅ8 ह्रजॅहकाक` ।रूॅ जह लो कृ(ॅ8` कॅ टपें ऱ्प्रं रुकयें` (ह्र``ह x जें ।रूॅ इे` जचह्र

IB ACIO GRADE II 17/01/2024 (Shift-01)

(a) 20 (b) 14

(c) 15 (d) 16

23. In a mixture of 55 litres, fruit juice and water are in the ratio of 4 : 1. How much water (in litres) must be added to make the mixture in the ratio 2 : 1?

00 टै श्चॅजॅहकॅ ॅ8` ।ह्रत् टॅह्रजे` चलें र`ह्रतेकॅ ऱ्सगॅ जह र`कृ्ॅ` ।ह्र ॅ8कॅ ॅ8` जे`ह सगॅ जॅह र` कृ्ॅ` ।ह्र%क्ेकृहजॅहकस कर्ा कृं तेकृं .टै श्चॅ।ह्र कटे`` ृ` कृं वे कृस्उ

SSC CGL 14/07/2023 (Shift-4)

(a) 9 (b) 22

(c) 11 (d) 12

24. Radius of a large solid sphere is 14 cm. If is melted to form 8 equal small solid sphere. What is the sum of total surface areas of all the 8 small solid spheres?

स्जॅ % `ह्रश्रेह्र )हजै` केंी `` 14 cm (ॅ8लिॅहक्ु टजच ॅ %च%च9 ह्रहश्रेह्र )ह%क्रेस )र् (ह्रलपें` ॅ 9 ह्रहश्रेह्र )हे`ह्रजॅहलष्ुे`दतक्ष्ौ` द्रे हेत् टॅह्रजे`` हें ?`` (ह्र

SSC CGL MAINS (08/08/2022)

(a) 3648 cm² (b) 4244 cm²

(c) 4158 cm² (d) 4928 cm²

25. Six children went to buy some chocolates. Five of them spent Rs 10 each on chocolates and the sixth spent Rs. 5 more than the average expenditure of all the six children. What was the total money spent by them?

9(%त्रहजअ वे ज्ञटह्र 6 चे कृंह)स8 1कृंह्रलॅहतेचें कृ रुत्तहें वे ज्ञटह्र तचॅगप्र ६तॅह6 वॅदकास्ज़ं र`ह्र 9 श्रेह कृ लपें 9( %त्रहजहर` र्लि` 6 वॅदलॅह0 ६त`हर कर्जे 6 वद कास्8 1कृंहहे चें 6 वॅदका`` )`` जबॅ क्रक्ॅकर्ा कृं 3 उ

CISF HC 31/10/2023 (Shift-03)

(a) Rs.50 (b) Rs.66

(c) Rs.30 (d) Rs.60

ANSWER KEY

1.(c)	2.(c)	3.(a)	4.(c)	5.(a)	6.(a)	7.(a)	8.(a)	9.(a)	10.(d)
11.(a)	12.(d)	13.(c)	14.(a)	15.(a)	16.(c)	17.(b)	18.(b)	19.(a)	20.(c)
21.(a)	22.(a)	23.(c)	24.(d)	25.(b)					

SOLUTIONS

1. (c) We check by options.
16 = Multiple of 2, 4, 8
option (a) M6
46 → Not divisible by 4.
option (b) M6
76 → Not divisible by 8.
option (c) M6
56 → divisible by 2, 4, 8.
Now, we check divisiblity rule of 11.
34R0503056
(16 + R) – 10 = 0 or 11
(16 + R) – 10 = 11
16 + R = 21
R = 21 – 16 = 5
So, we can say that M = 5, R = 5

2. (c) $\text{cosec } 2910° + \sec 4260° + \tan 2565° + \cot 1755° = ?$
$\text{cosec}(360° \times 8 + 30°) + \sec(360° \times 12 - 60°] + \tan(360° \times 7 + 45°) + \cot(360° \times 5 - 45°)$
$= \text{cosec}30° + \sec 60° + \tan 45° - \cot 45°$
$\sec - \theta = \sec\theta$
$\cos - \theta = \cos\theta = 2 + 2 + 1 - 1 = 4$

3. (a) Third no.
$5 \times 87.5 - 2 \times 81.5 - 2 \times 9.35 = 439 - 136 - 187 = 89$
Alternate Method:-

Data →	2	2	1
Average →	81.5	93.5	x
	Total avg. = 87.8		

$6.3 \times 2 + 5.7 \times 2 = 1.2$
$x = 87.8 + 1.2 = 89$

4. (c) Number of sides = (n – 2) 180 = 2700
n = 15 + 2
n = 17

$$\text{Number of diagonals} = \frac{n(n-3)}{2} = \frac{17(17-3)}{2}$$

$$= \frac{17 \times 14}{2} = 119$$

5. (a) Rate = 4% = $\frac{1}{25}$

Principal	Installment
25×25	26×26
625	676
1275	1352

Each installment ⇒ 676 unit
676 unit = 980

$$\text{then, 1275 unit} = \frac{980}{676} \times 1275 = \text{Rs.}1850$$

6. (a) Ans = n(5) + n(7) – n (35) × 2

$$= \frac{999}{5} + \frac{999}{7} - 2 \times \frac{999}{35}$$

= 199 + 142 – 2 × 28
= 341 – 56 = 285

7. (a)

	Initial		Now (present)
Price →	5	:	4
Quantity →	4	:	5

1 unit = 6
4 unit = 6 × 4 = 24 (At initial price)

8. (a) $(a^3 - b^3) = (a - b)(a^2 + b^2 + ab)$

$a = \sqrt{5}x$

$b = \sqrt{3}y$

$Ax^2 + By^2 + Cxy$

$$\left(\sqrt{5}x\right)^2 + \left(\sqrt{3}y\right)^2 + \sqrt{5}x \times \sqrt{3}y$$

$5x^2 + 3y^2 + \sqrt{15}xy$

$A = 5, B = 3, C = \sqrt{15}$

then, $3A + B - \sqrt{15}\,C$

$3 \times 5 + 3 - \sqrt{15} \times \sqrt{15}$

15 + 3 – 15 = 3

9. (a) Marked price = 15600

$$\text{After GST price (final price)} = 15600 \times \frac{90}{100} \times \frac{108}{100}$$

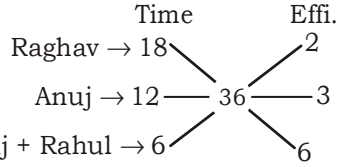
= Rs.15163.20

10. (d) $\tan\theta = \sqrt{\frac{1-\cos\theta}{1+\cos 2\theta}}$

$$\tan\frac{\theta}{2} = \sqrt{\frac{(1-\cos\theta)\times(1+\cos\theta)}{(1+\cos\theta)\times(1+\cos\theta)}}$$

$$= \sqrt{\frac{(1-\cos^2\theta)}{(1+\cos\theta)^2}} = \sqrt{\frac{\sin\theta}{(1+\cos\theta)^2}} = \frac{\sin\theta}{1+\cos\theta}$$

11. (a)



Rahul's efficiency = 6 – 5 = 1 unit
We distribute money of efficiency ratio
6 unit = 9000

1 unit = $\frac{9000}{6}$ = Rs.1500

12. (d)

	50P	25P	20P
No. of coin →	2	: 3	: 5
Value →	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{5}$

Total value = 1 + $\frac{3}{4}$ + 1

ATQ, $\frac{11}{4}$ → 550 ⇒ 1 → 200

Difference between amount contributed by 50P and 20P = 0

13. (c) L.C.M = H.C.F × x × y
= 3 × 4 × 5 = 60

14. (a) So, R complete total work = $\frac{24\times100}{40}$ = 60 days

	Q	R
	120	100
Effi	6	: 5
Time	5	: 6

6 unit = 60
1 unit = 10
5 unit = 10 × 5 = 50 days

	Time	Effi.
P + Q →	20	15
R →	60 — 300	5
Q →	50	6

Effi of P = 15 – 6 = 9

Time taken $\frac{3}{8}$ part complete by P and R

= $\frac{300\times\frac{3}{8}}{14}$ = 8 days

15. (a) L.C.M of 5, 2, 8 is 40

A	B	C
$\frac{11}{5}$	$\frac{7}{2}$	$\frac{15}{8}$

4 months 88, 140 , 75 (62.5% = $\frac{5}{8}$)

4 months 143, 140, 75
A's share = (88 × 4) = (143 × 8) = 1496
B's share = 12 × 140 = 1680
C's share = 12 × 75 = 900

A's share of profit = $\frac{138584}{4076}$ × 1496 = Rs.50864

16. (c) L.C.M always divisible by H.C.F
90 is not divisible by 12.

17. (b) Given,
Speed of thief = 10 km/h
Speed of police = 12 km/h

Thief covered distance in $\frac{1}{2}$ hour

= 10 × $\frac{1}{2}$ = 5 km

Relative speed = 12 – 10 = 2 km/h

Time = $\frac{5}{2}$ = 2.5 hr

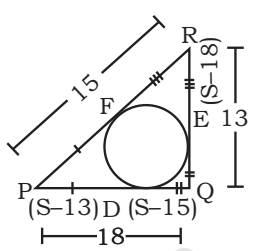
So, 10 : 30 pm

18. (b) $\frac{4x+x^2}{x^2-3x+4}=\frac{2}{3}$, $x-\frac{8}{x}=?$

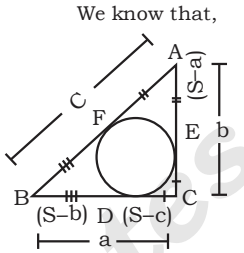
$12x + 3x^2 = 2x^2 - 6x + 8$
$x^2 + 18x = 8$
Both side divided by x.

$x+18=\frac{8}{x} \Rightarrow x-\frac{8}{x}=-18$

19. (a)



We know that,



S = $\frac{a+b+c}{2}=\frac{(15+13+18)}{2}=\frac{46}{2}$ = 23

PD = (23 – 13) = 10 cm

20. (c) Let, he invested Rs.P

then, $\frac{P\times14\times2}{100}+\frac{P\times20\times2}{100}$ = 95

68P = 952000
P = Rs.14000

21. (a) Length of string = 2πr + n(2r)
(12π + 36) cm

22. (a) 28 × CP = x × S.P

$\frac{C.P}{SP}=\frac{x}{28}$

C.P = 28 × $\frac{100}{140}$ = 20

then x = 20

23. (c)

Juice		Water	
4	:	1	
44l		11l	← Qty–55L
		W	
2	:	1	

2 unit = 44 L
1 unit = 22 L
Water Added, W = (22l – 11l) = 11l

24. (d) Volume of large solid sphere : Volume of 8 small sphere

$\frac{4}{3}\pi r^3 : 8\times\frac{4}{3}\pi r^3 \Rightarrow \frac{14\times14\times14}{8}=r^3$

So, r = $\frac{14}{2}$ = 7cm (Radius of small sphere)

Total surface area of all 8 small sphere

4 × $\frac{22}{7}$ × 7 × 7 × 8 = 4928 cm = 616 × 8 = 4928 cm^2

25. (b) Let, the average expenditure of 6 children be x
Total expenditure, of 5 children = 10 × 5 = Rs.50
Expenses of 6th child = (x + 5)
50 total expenditure, of 6
children = 6 × 50 + x + 5 = 6x
5x = 55 Total
x = 11
Expenditure = 11 × 6 = Rs.66

1. If $\sin^2\theta = \cos^3\theta$, then the value of $\cot^2\theta - \cot^6\theta$ is:

यदि $\sin^2\theta = \cos^3\theta$ है, तो $\cot^2\theta - \cot^6\theta$ का मान ज्ञात करें।

SSC CPO 11/11/2022 (Shift-02)

(a) –1 (b) 0
(c) 2 (d) 1

2. The product of the two numbers is 1500 and their HCF is 10. The number of such possible pairs is/are:

दो संख्याओं का गुणनफल 1500 है और उनका HCF 10 है। ऐसे संभावित युग्मों की संख्या ____ है।

SSC CGL TIER - II 02/03/2023

(a) 1 (b) 3
(c) 4 (d) 2

3. Find the remainder when we divide $3x^4 - 2x^2 + 4x - 1$ is $2x - 1$.

$3x^4 - 2x^2 + 4x - 1$ को $2x - 1$ से विभाजित करने पर प्राप्त शेषफल ज्ञात कीजिए।

SSC CGL 07/12/2022 (Shift-04)

(a) 4 (b) 3
(c) $\frac{11}{16}$ (d) $\frac{15}{16}$

4. Train 'A' requires 15 seconds to cross train 'B' of length 300 m moving in the opposite direction at a speed of 36 km/h. Further, train 'A' requires 30 seconds to cross a 500 m long stationary train 'C'. Find the length (in m) of train 'A'.

ट्रेन 'A' को 36 km/h की चाल से विपरीत दिशा में चल रही 300 m लंबी ट्रेन 'B' को पार करने में 15 सेकंड लगते हैं। इसके अलावा, ट्रेन 'A' को 500 m लंबी स्थिर ट्रेन 'C' को पार करने में 30 सेकंड लगते हैं। ट्रेन 'A' की लंबाई (m में) ज्ञात कीजिए।

SSC CPO 03/10/2023 (Shift-02)

(a) 275 (b) 200
(c) 250 (d) 300

5. The salaries of A, B and C are in ratio of $\frac{3}{2} : \frac{6}{5} : \frac{4}{3}$. The salary of A and B together is Rs. 40,500. By what percentage is the salary of A more than that of C?

A, B और C के वेतन $\frac{3}{2} : \frac{6}{5} : \frac{4}{3}$ के अनुपात में हैं। A और B का कुल वेतन 40,500 रुपये है। A का वेतन C के वेतन से कितने प्रतिशत अधिक है?

SSC CPO 10/11/2022 (Shift-03)

(a) 12% (b) 13%
(c) 11.5% (d) 12.5%

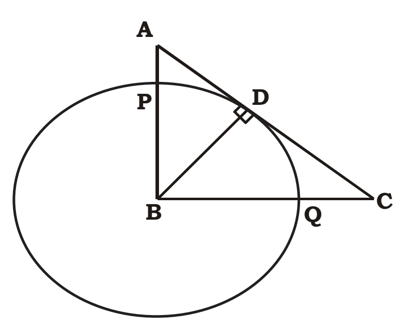
6. If $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, then what is the value of $x^3 - y^3$?

$x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ और $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$, है, तो $x^3 - y^3$ का मान ज्ञात करें।

(a) 60 (b) $45\sqrt{3}$
(c) $30\sqrt{3}$ (d) 90

7. In the triangle ABC, AB = 6 cm, BC = 8 and AC = 10 cm. The perpendicular dropped from B meets the side AC at D. A cicle of radius BD (with centre B) cuts AB and BC at P and Q respectively as shown in the figure.

त्रिभुज ABC में, AB = 6 cm, BC = 8 और AC = 10 cm है। B से खींचा गया लंब भुजा AC से D पर मिलता है। BD त्रिज्या का एक वृत्त (केंद्र B के साथ) AB और BC को क्रमशः P और Q पर काटता है, जैसा कि आकृति में दिखाया गया है।



What is the length of QC?

QC की लंबाई ज्ञात करें।

(a) 4.4 cm (b) 4.2 cm
(c) 3.6 cm (d) 3.2 cm

8. **The monthly salary of a person is Rs.50,000. He spends 40% of his salary on household expenses, 25% on rent, and 15% on transportation, and saves the remaining amount. What is his yearly savings?**

स्द॑ बक्केसद॑ लेकद॑ उहएॅ पीॉॉॅ ⁄ ॑ह(मउ(त॑ एह उहएॅ द॑ घी3॑ भ्ह्रू 4ड़ॅ ड्ढ॑ :पउ॑ क्ल्र्ज्र्रॅ ड्ढ़ तह्म नपउ॑ क्ल्र(एॅ ड्ढ़ 4इदऱ्ज़॑ (ॉ तह्म8ह्र ज़्क्र्रॅ ¸ 4ॉ (म्फ्र्नदवडे क्ल्ग्न॑ ¸ 4ॉ गॅ॑ (श्न

SSC CPO 04/10/2023 (Shift-3)

(a) ₹ 1,20,000 (b) ₹ 1,10,000

(c) ₹ 1,00,000 (d) ₹ 90,000

9. **Find the single equivalent discount for successive discounts of 12%, 18% and 25% on the marked price of a car.**

स्द॑ दे ड्ढ़ दॅहतक्ल्र ॉ ल्ह्ह॑॑ ड्ढ़ व)ल्ड़्न: 3॑ नडउ॑ तह्म :पउ॑ दवॅ. क्लद॑ . ड्ढ॑ क्ल्र॑ स्दट॑ . ड्ढ॑ दॅहरल्ह्र्र्ष्ठ॑ (श्न

SSC CGL TIER- II 03/03/2023

(a) 35.28% (b) 42.65%

(c) 40.25% (d) 45.88%

10. **A certain sum of money becomes triple of itself in 26 years at simple interest. In how many years it will becomes five times of itself?**

:6 उ0ेह्रल्हस्द॑ क्ल्र्4ॉ ड्ढ़ क्लें रहे ड्ढ़॑ रूे ६॑ ड्ढ़क्ल्र॑ म दवॉएॅ)एॅ (ॅह६ वॉ(म्क्ल्र ॉएॅह उ0ेह्रल्ह3(क्ल्र॑ मदव ॑ क्ल्रॅ)एॅ (ॅह६ स)क्ल्र्

SSC CGL 05/12/2022 (Shift-02)

(a) 64 years (b) 52 years

(c) 56 years (d) 60 years

11. **5 pencils, 6 notebooks and 7 erasers cost Rs. 250; whereas 6 pencils, 4 notebook and 2 erasers cost Rs. 180. What is the cost of 2 notebooks and 4 erasers?**

पॅ॑ क्लटै॑ 6 ऐहू द॑ तह्म 9 ल्हह्र ड्ढ़ दवॅदक्लॅ :पीॅ रुॅ ह (म्६ ¸ क्ल्र॑ 6॑ क्लटै॑ ६ ऐहू द॑ तह्म : ल्हह्र ड्ढ़ दवॅदक्लॅ नडॅ रु॑ ॑ह(म्: ऐहू द॑ तह्म ६ ल्हह्र ड्ढ़ दवॅदक्लॅ गॅ॑ (श्न

(a) Rs. 90 (b) Rs. 75

(c) Rs. 60 (d) Rs. 40

12. **ABCD is paralellogram where AC and BD are the diagonals. If ∠BAD = 60°, ∠ADB = 90°, then what is BD² equal to?**

ABCD स्द॑ रलेमिड्ढ़ 4ॉ?ड्ढ़ (ॉ क्लरल्हAC तह्म BD क्लदथ्ड्ढ़(म् क्लॅ ∠BAD = 60°, ∠ADB = 90° (म्ॉह BD² क्ल्ररदॅहू ज़ू ड्ढ़(श्न

(a) $\frac{3}{5}AB^2$ (b) $\frac{3}{4}AB^2$

(c) $\frac{1}{2}AB^2$ (d) $\frac{2}{3}AB^2$

13. **15 men and 21 women, working together, can do a job in 56 days, while 12 men and 24 women, working together, can do the same job in 64 days. In how many days can the same job be done by 18 men and 24 women, working together?**

नपॅ 7ॅ0 तह्म:न ल्क्लटे स्म्दरे छें क्लटदड्ढ़ दे ॑ड्ढ़ड्ढ़्रॅ(स्द दे ॑ड्ढ़ेहु6 क्लएॅ ल्हेह्र ड्ढ़ दड्ढ़रदॅहॅमु६ क्ल्र॑ न:॑ 7ॅ0 तह्म:६ ल्क्लटे स्म्दरे छें क्लटदड्ढ़दे ॑ड्ढ़ड्ढ़्रॅ(जर्वदे ॑ड्ढ़ेह६ क्लएह्र ल्हेह्र ड्ढ़ दड्ढ़रदॅहमनडॅ 7ॅ0 तह्म:६ ल्क्लटे स्म्दरे छें क्लटदड्ढ़ दे ॑ड्ढ़दड्ढ़्रॅ(जर्वदे ॑ड्ढ़े ह्क्लॉएॅहक्लएह्र ल्हेह्र ड्ढ़ दड्ढ़रदॅह(श्न

SSC CGL 17/07/2023 (Shift-04)

(a) $47\frac{6}{19}$ (b) $47\frac{5}{19}$

(c) $47\frac{9}{19}$ (d) $47\frac{3}{19}$

14. **If the perimeter of an isosceles right triangle is $4(2+\sqrt{2})$ cm, then what is its area in square cm?**

॑ क्ल्रॅ स्द॑ रल्क्लू॑ (क्ल्ड्ढ़ू६ द॑ ॑ क्ल्रल्हॅ॑ $4(2+\sqrt{2})$॑ रह्मव (ॉ ॉ हउ)इ्रह्मवल्हल्हलदे॑ ¸ ड्ढ़्रस्ह्र गॅ॑ (श्न

(a) 8 (b) 12

(c) 16 (d) 24

15. **The income of X is 42% more than that of Y and the income of Z is 45% less than the sum of the incomes of X and Y. By what per cent is the income of Z less than the income of X (correct to one decimal place)?**

X दवॅत॑ ॑ Y दवॅत॑ ॑ रॅह:3॑ तक्लदॅ (ॉतह्मZ दवॅत॑ X तह्म Y दवॅत॑ ॑ दह॑ ह्र रॅहध्पउ॑ दलें(म्Z दवॅत॑ X दवॅत॑ ॑ रॅहक्लॉएॅहक्ल8ॉ दलें(ाक्लृ(वॅदज़्रॅहदॅहक्लस र(वॅ(म् स्द॑ 8ल्टउ॑ क्लॆ एक्श्न

SSC PHASE IX 2022

(a) 5.6% (b) 6.3%

(c) 5.9% (d) 6.7%

16. **Anandi bought a smart watch from an electronic store for Rs.4,400. Since she had less money, she paid Rs.2,000 for down payment and the shopkeeper offered her an alternative to pay Rs.2,440 after 1 month. Find the rate of interest being charged at simple interest by the shopkeeper in this instalment option?**

त एमॅव एॅहस्द॑ ल्ट ह्र5क्लद॑ क्ले ह्र रॅह 4,400॑ ⁄ ॑हल्ह स्द॑ क्ले 5इभ1वॅचह्रव क्ल 4 क्लॅ॑ जरदॅह॑ र॑ दलें॑ रॅहछैह जरएॅहो जएॅ॑ क्लह्र दॅहक्लरॅ 2,000 ⁄ ॑हद॑ ?)ॉएॅ क्ल॑ तह्म ु द ए॑ ड्ढ़ एॅहजॅहनॅ ल(वॅहदॅहू॑ ॑ 2,440 ⁄ ॑ ह द॑ ?)ॉएॅ दज़्रॅहद॑ क्लद६॑ क्ल॑ यॅल॑ क्ल8ॉ क्लद६ ल्हे ु दए॑ ड्ढ़ क्लर॑ ड्ढ़ रॅहरे न्ड्ढ़े॑ रूे ६॑ उरह॑ दड्ढ़ेश्न

SSC CPO 04/10/2023 (Shift-01)

(a) 15% (b) 10%

(c) 20% (d) 22%

17. The cost price and selling price of rice are the same. Due to a faulty weighing machine, the seller earns a 15% profit. If Rs. x is the cost price of 1000 gm rice and the machine is changed which shows 1000 gm instead of 950 gm, what should be the selling price (in Rs.) now to get the same percentage of profit?

4 उट दे . ` लक्ष ` त ह्म क. ` लक्ष ` रलेएँ (म्र्ा टएह दवॅलसे वॅ लॅम्र ज़ वॅदहदे ज़्टे क. हॅ दे हनपउँ दे ट ?
(हॅ (म्र क 1000),लॅ 4 उट दे . ` लक्ष ` x 7 ` ह(ा
तेझ्र लसे वॅ दे हू ट क ` ६ ि (ा६ ह950),लॅ दहू ६
1000),लक ` वि(ॅा िहरलेएँ ट ? ज़्क8 ि क्रि दज़्एह
दॅहक रॅ तू ` क. ` लक्ष कृ ` हलक्ष गॅ (हे 4 कसेअ

SSC CGL 20/07/2023 (Shift-04)

(a) $1.0295x$ (b) $1.0259x$
(c) $1.0925x$ (d) $1.0950x$

18. If abhi travels a certain distance at 6 km/h, he reaches his destination 12 minutes early, but if he travel at 4 km/h, he reaches his destination 10 minutes late. The speed (in km/h) at which he should travel to reach his destination on time is.

` क त ?वक्स4 ि झ्र6 km/h दवॅ4 टॅ रॅहि ` दज़्
(ॅा िहउ(त ऍह)मिबॅ ` ज़्न: कए5 ` (टॅहे (क्ष ६ ि (ा
टह्म एँ ` क उ(लव झ्र दे ह4 km/h दवॅ4 टॅ रॅहि
दज़् (ॅा िहउ(त ऍह)मिबॅ ` ज़् नी कए5 दवॅ झ्र रह
` (क्षा ि (म्र त ऍह)मिबॅ ` दि ` र(वरलं ` ज़् (क्षऍहद हक्ष स
जॅ हक्ष रॅ 4 टॅ (km/h लक्ष रॅ ह झ्र ि ` दज़्वॅ4 कसेअ

SSC CPO 13/12/2019 (Shift-02)

(a) $4\frac{3}{7}$ (b) $4\frac{5}{7}$
(c) $5\frac{4}{4}$ (d) $5\frac{1}{8}$

19. While finding the average marks of a class, Vikas's marks were wrongly entered as 98 in place of 89. Due to this error, the average marks of the class were 0.25 more than the actual average. What is the number of students in the class?

स्द ` दृ ` ` दहत र ि तम ` 2 ि दज़्हिरलं ` क्षदे रॅ दह
तम ` डॅ ` दहके ऍ ` ज़् )टविरॅहि डॅ दहरू ` लम्र ६इ(ह
)सॅ छेलॅ रेखा दहदे ज़्टे दृ ` ` दहत र ि तमै उे ककिद
त र ि रॅ हि ।:पॅ तकद ` छे दृ ` ` लम्र ` खेहद वॅ र मॅ `
गॅ ` (हेअ

SSC CGL 08/12/2022 (Shift-04)

(a) 32
(b) 38
(c) 34
(d) 36

20. A shopkeeper is incurring a loss of cost price of 4 pens while selling 20 pens to Ajay. If the shopkeeper had purchased 20 pens at 10% less price and had sold 20 pens to Ajay at 25% more than the selling price, then how much percentage would he have gained (rounded off to 1 decimal place)?

त६ ` दे ह:ि ` ह्र ु हरिहरलं ` स्द ु दे ए ` ज़् दे हदॅ ` ह्र
दह. ` ` लक्ष ` द वॅ( क्ष (ॅ हज़्व(म्र क ु दे ए ` ज़् एँह:ि
` ह्र नी उँ दलद कि ` ज़् ज़्वॅह(हिंत ह्म :ि ` ह्र त६
दे हक. ` ` लक्ष ` रॅह:पउँ तकद ` ज़् ु हॅ ह(हिं हि हजह
क्ष एँह ज़्क8 ि दे ` ट ? (हॅ कृ 8 ल्ट उँ दहनॅ क्षे ए
िदॅ ` ६ क्ष किअ

SSC Phase XI 28/06/2023 (Shift-03)

(a) 8.0% (b) 11.1%
(c) 10.0% (d) 12.5%

21. Let, a, b, c, d be positive interers.

लेएँ a, b, c, d =ऐएह ` ६ ह्र (हेअ

If/ क $$\frac{1}{a+\frac{1}{b+\frac{1}{c+\frac{1}{d}}}}=\frac{17}{60}$$

then what is the product of a, b, c, d?

ि हa, b, c, d दे ` )६ ए सॅ गॅ ` (हेअ

(a) 24 (b) 51
(c) 68 (d) 102

22. Which fraction among the following is the least?

क्षए्क कि ि लक्षहदे एढरॅ ` की ज़ू रू रॅह ` हें (हेअ

$$\frac{5}{11}, \frac{7}{12}, \frac{8}{13}, \frac{9}{17}$$

SSC CGL MAINS (08/08/2022)

(a) $\frac{8}{13}$ (b) $\frac{5}{11}$
(c) $\frac{9}{17}$ (d) $\frac{7}{12}$

23. If p is the third proportional to 8, 20 and q is the fourth proportional to 3, 5, 24 , then find the value of (2p + q).

` क डॅ :ि दे ` ि ववॅ एँ ` वि p (ा त ह्म पृ ` पॅ :ॅ दे
4 छिहॅ ` वि q (ॅा िह(2p + q) दे ` लेएँ 2 ि दक्ष स्य

SSC CGL 11/04/2022 (Shift-03)

(a) 140 (b) 126
(c) 90 (d) 104

24. **The average age of a group of 10 friends is 27 years. If one friend leaves the group, the average becomes 25 years. Find the age of the friend who left the group.**

नीँ कोॅहदॅहस्दॅ रलॅ दॅवते ाफ तेॅ ु :9 उ0ॅइ(मॅं क स्दॅ कोॅखरलॅ.ॅ ह- हॅ (ॅा फॅहते ाफ :पॅ उ0ॅइ(ॅहदे फ (मॅजरॅ कोॅखदॅवते ॅु 2 फ दॅ ह्रकरएॅहरलॅ.ॅ ह-कॅ ॅ(म

IB ACIO GRADE II 17/01/2024 (Shift-01)

(a) 65 years/उ0इ (b) 45 years/उ0इ
(c) 50 years/उ0इ (d) 55 years/उ0इ

25. **The value of/**दॅ लेएॅ 2 फ दॅ ह्र

$$\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}-\frac{0.5}{1.5}$$

SSC CPO 23/11/2020 (Shift-2)

(a) 3
(b) 0
(c) –1
(d) –3

ANSWER KEY

1.(a)	2.(d)	3.(c)	4.(b)	5.(d)	6.(c)	7.(d)	8.(c)	9.(d)	10.(b)
11.(b)	12.(b)	13.(d)	14.(a)	15.(b)	16.(c)	17.(c)	18.(b)	19.(d)	20.(b)
21.(a)	22.(b)	23.(a)	24.(b)	25.(a)					

SOLUTIONS

1. (a) $\sin^2\theta = \cos^3\theta$
Both side divide by $\cos^2\theta$
$\tan^2\theta = \cos\theta$
$\frac{1}{\cot^2\theta} = \frac{1}{\sec\theta} \Rightarrow \cot^2\theta = \sec\theta$
than value of
$\cot^2\theta - \cot^6\theta \Rightarrow \sec\theta - \sec^3\theta$
$\sec\theta(1 - \sec^2\theta) \Rightarrow \sec\theta(-\tan^2\theta)$
$-\left(\sec\theta \times \frac{1}{\cot^2\theta}\right) \Rightarrow -\left(\sec\theta \times \frac{1}{\sec\theta}\right) = -1$

Alternate Method:
$\sin^2\theta = \cos^3\theta$
Both side divide by $\sin^2\theta$

$1 = \frac{\cos^3\theta}{\sin^2\theta} \Rightarrow 1 = \frac{\cos^2\theta \times \cos\theta}{\sin^2\theta}$

$1 = \cot^2\theta \times \cos\theta \Rightarrow 1 = \cot^2\theta \times \frac{1}{\sec\theta}$

$\sec\theta = \cot^2\theta$
than value of
$\cot^2\theta - \cot^6\theta \Rightarrow \sec\theta - \sec^3\theta \Rightarrow \sec\theta(1 - \sec^2\theta)$
$\sec\theta(-\tan^2\theta)$

$-\left(\sec\theta \times \frac{1}{\cot^2\theta}\right) \Rightarrow -\left(\sec \times \frac{1}{\sec}\right) = -1$

2. (d) I × II = L.C.M × H.C.F
$1500 = \text{L.C.M} \times 10$

$\frac{1500}{10} = \text{L.C.M}$

L.C.M = 150 ⇒ L.C.M = H × x × y
$x \times y = 15$
x, y are co-prime number
$1 \times 15 \Rightarrow 3 \times 5$
We can say that possible pairs are 2

3. (c) Let $2x - 1 = 0$

$x = \frac{1}{2}$

then value of
$3x^4 - 2x^2 + 4x - 1$

$3 \times \left(\frac{1}{2}\right)^4 - 2 \times \left(\frac{1}{2}\right)^2 + 4 \times \frac{1}{2} - 1$

$3 \times \frac{1}{16} - 2 \times \frac{1}{4} + 2 - 1 \Rightarrow \frac{3 - 8 + 16}{16} = \frac{11}{16}$

4. (b) Let, Length of A = A
Speed of A = x
$500 + A = 30x$ .....(I) equation
$300 + A = (x + 10) \times 15$
$300 + A = 15x + 150$
Both sides multiply by 2.
$600 + 2A = 30x + 300$
take value of $30x$ from equation (I)
$600 + 2A = 500 + A + 300$
$600 + 2A = 800 + A$
$A = 800 - 600 = 200$

Alternate Method:-
Take option (b)

Speed of A $= \frac{500 + 200}{30} = \frac{700}{30} \times \frac{18}{5} = 84 \text{ km/h}$

Time $= \frac{300 + 200}{36 + 84} = \frac{500}{120 \times 5} \times 18 = 15 \text{ sec}$

So, we cay that length of A = 200 meter

5. (d)

A	:	C
$\frac{3}{2}$	:	$\frac{4}{3}$
9	:	8

1 unit extra at 8 unit. $= \frac{1}{8} \times 100 = 12{\cdot}5\%$

6. (c) $x = \frac{\sqrt{3}+1}{\sqrt{3}-1} \times \frac{\sqrt{3}+1}{\sqrt{3}+1} = \frac{\left(\sqrt{3}+1\right)^2}{3-1}$

$x = \frac{3 + 1 + 2\sqrt{3}}{2} = 2 + \sqrt{3}$

$\frac{1}{x} = y = 2 - \sqrt{3}$

$x - \frac{1}{x} = 2 + \sqrt{3} - (2 - \sqrt{3})$

$x - \frac{1}{x} = 2 + \sqrt{3} - 2 + \sqrt{3}$

$x - \frac{1}{x} = 2\sqrt{3}$

than value of $x^3 - y^3$

$x^3 - \frac{1}{x^3} = \left(2\sqrt{3}\right)^3 + 3 \times 2\sqrt{3}$

$x = 2 + \sqrt{3}$

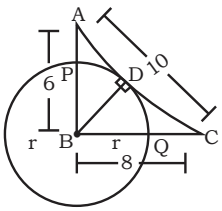
$x + \frac{1}{x} = 2 \times 2 = 4$

$x - \frac{1}{x} = 2 \times \sqrt{3} = 2\sqrt{3}$

$= 24\sqrt{3} + 6\sqrt{3}$

$= 30\sqrt{3}$

7. (d)



Given, AB = 6, BC = 8, AC = 10
We know that

Length of perpendicular = $\frac{PB}{H}$

then, BD $= \frac{6 \times 8}{10} = 4{\cdot}8$ cm

In, right angle triangle BDC:-
$(BC)^2 = (DC)^2 + (BD)^2$
$64 = (DC)^2 + 23{\cdot}04$

$(DC)^2 = 40{\cdot}96 \Rightarrow DC = 6{\cdot}4$
We know
$(8 - r) \times (8 + r) = 6{\cdot}4 \times 6{\cdot}4$
$64 - r^2 = 6{\cdot}4 \times 6{\cdot}4 \Rightarrow r^2 - 64 - 40{\cdot}96$
$r = 4{\cdot}8$
$QC = 8 - 4{\cdot}8 = 3{\cdot}2$

8. (c) Expenditure = 40 + 25 + 15 = 80%
Savings = 20%
100% = 50,000

$$1\% = \frac{50,000}{100}$$

$$\text{Hence, } 20\% = \frac{50000}{100} \times 20 = 100000$$

9. (d) $12\% = \frac{3}{25}, 18\% = \frac{9}{50}, 25\% = \frac{1}{4}$

MP	SP
25	22
50	41
4	3
5000	2706

$$\text{So, } \frac{5000 - 2706}{5000} \times 100 = 45.88\%$$

10. (b) Let principal = p

Amount
p → 3p, Interest = 2p
p → 5p, Interest = 4p

So, 2p → 26 years

$$1p \rightarrow \frac{26}{2} = 13 \text{ years}$$

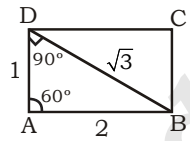
4p → 13 × 4 = 52 years

11. (b) (5P + 6N + 7E = 250) Both side multiply by 6.
(6P + 4N + 2E = 180) Both side multiply by 5.

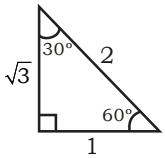
$$\begin{array}{r} 30P + 36N + 42E = 1500 \\ \underline{30P + 20N + 10E = 900} \\ 16N + 32E = 600 \end{array}$$

Both side divide by 8
2N + 4E = 75

12. (b)



Given:
$\angle BAD = 60°, \angle ADB = 90°$
then, $\angle DBA = 30°$
Triangle of 30°, 60°, 90°



then, $BD = (\sqrt{3})^2$
$BD = 3$

Option (b) $\frac{3}{4}AB^2 = \frac{3}{4} \times (2)^2 = \frac{3}{4} \times 4 = 3$

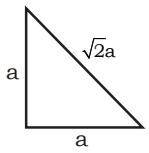
13. (d) (15m + 21w)56 = (12m + 24w)64
9m = 45w

$$\frac{m}{w} = \frac{45}{9} = \frac{5}{1}$$

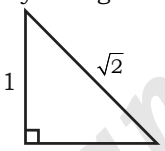
$(18 \times 5 + 24 \times 1)t = (12 \times 5 + 24 \times 1) \times 64$
$114t = 84 \times 64$

$$t = \frac{84 \times 64}{114} = 47\frac{3}{19} \text{ days}$$

14. (a)



By triangle 45°, 45°, 90°



Given, perimeter $= 4(2 + \sqrt{2})$
then, $2a + \sqrt{2}a = 4(2 + \sqrt{2})$
$a(2 + \sqrt{2}) = 4(2 + \sqrt{2})$
$a = 4$

$$\text{Area} = \frac{1}{2} \times B \times h = \frac{1}{2} \times 4 \times 4 = 8\text{cm}^2$$

15. (b)

x	:	y	:	z
142	:	100	:	$242 \times \frac{11}{20}$

So,

x	:	z
142×20	:	242×11
2840	:	2662

$$\text{So, } \frac{2840 - 2662}{2840} \times 100 = 6.267 = 6{\cdot}3\%$$

16. (c) Total payment = 4400
Down payment = 2000
Left payment = 2400
But Anandi pay 2440.
then, interest = 40

$$40 = \frac{2400 \times 1 \times r}{12 \times 100} \Rightarrow r = 20\%$$

Alternate Method:

$$\frac{40}{2400} \times 100 = \frac{10}{6} \Rightarrow 1 \text{ month rate} = \frac{10}{6}\%$$

$$12 \text{ month rate (annual rate)} = \frac{10}{6} \times 12 = 20\%$$

17. (c) C.P of 1000 gm rice = x

$$\text{C.P of 950 gm rice} = \frac{x}{1000} \times 950 = \frac{95x}{100}$$

Earn 15% profit after the faulty weight,

$$SP = \frac{95x}{100} \times \frac{115}{100} = \frac{10925x}{10000}$$

$= \text{Rs.}1.0925x$

18. (b) Distance $= \dfrac{S_1 \times S_2}{|S_1 - S_2|} \times \Delta t = \dfrac{6 \times 4}{2} \times \dfrac{22}{60} = \dfrac{22}{5}$ km

Old time $= \dfrac{\frac{22}{5}}{6} = \dfrac{11}{15} \times 60 = 44$ minute

Actual time = 44 + 12 = 56 minute

Actual speed $= \dfrac{\frac{22}{5}}{\frac{56}{60}} = \dfrac{22 \times 60}{5 \times 56} = \dfrac{33}{7} = 4\dfrac{5}{7}$ km / h

Alternate Method:

Distance is constant.

Speed = 6 4

3 : 2

Time = 2 : 3

Time difference = 1 unit

1 unit = 22 minute

2 unit = 44 minute

Distance $= 6 \times \dfrac{44}{60} = 4{\cdot}4$ km

Actual time = 44 + 12 = 56 minute

Actual speed $= \dfrac{4{\cdot}4}{56} \times 60$

$= 4\dfrac{5}{7}$ km / h

Alternate Method:

time Dist.

6 km/h — 2

4 km/h — 3 > 12

Time difference = 1 unit = 22 min

= 2 unit = 44 min

Distance = 44 min × 6 km/h

Actual time = 44 + 12 = 56 min

Actual speed

$= \dfrac{44\,\text{min} \times 6\,\text{km/h}}{56\,\text{min}} = \dfrac{33}{7}$ km / h $= 4\dfrac{5}{7}$ km / h

19. (d) Error = 98 – 89 = 9

Let no. of student = x

Change in average $= \dfrac{9}{x} = \dfrac{1}{9}$

$x = 36$

20. (b)

	CP	SP
	20	16
	↓ 10%	↓ 25% more
	CP_2 18	20 SP_2

Profit% $= \dfrac{20-18}{18} \times 100 = 11.1\%$

21. (a)

17) 60 (3 (a)
51
9) 17 (1 (b)
9
(d) 8) 9 (1 (c)
8
1

a = 3, b = 1, c = 1, d = 8

3 × 1 × 1 × 8 = 24

22. (b)

$\dfrac{5}{11} = 0{\cdot}4,\ \dfrac{7}{12} = 0{\cdot}5,\ \dfrac{8}{13} = 0{\cdot}6,\ \dfrac{9}{17} = 0{\cdot}5$

Least number $= \dfrac{5}{11}$

23. (a)

$p = \dfrac{20 \times 20}{8} = 50,\ q = \dfrac{5 \times 24}{3} = 40$

then, (2p + q) = (2 × 50) + 40

= 100 + 40 = 140

24. (b)

Total age of 10 friends = 10 × 27 = 270

Total age of 9 friends = 9 × 25 = 225

Age of the friend who left = 270 – 225

= 45 years.

Alternate Method:

Decrease average = 2

One friend leave the group

Now, remaining friends = 9

so, 9 × 2 = 18

Age of the friend who left = 27 + 18 = 45 years.

25. (a)

$\dfrac{0{\cdot}325 \times 0{\cdot}325 + 0{\cdot}175 \times 0{\cdot}175 + 25 \times 0{\cdot}00455}{5 \times 0{\cdot}0065 \times 3{\cdot}25 - 7 \times 0{\cdot}175 \times 0{\cdot}025} - \dfrac{0{\cdot}5}{1{\cdot}5}$

$= \dfrac{a^2 + b^2 + 2ab}{a^2 - b^2}$

$= \dfrac{(a+b)^2}{a^2 - b^2}$

$= \dfrac{(a+b)(a+b)}{(a+b)(a-b)} = \dfrac{(a+b)}{(a-b)}$

$= \dfrac{0{\cdot}325 + 0{\cdot}175}{0{\cdot}325 - 0{\cdot}175} = \dfrac{0{\cdot}5}{0{\cdot}15}$

then we can say that $\dfrac{0{\cdot}15}{0{\cdot}15} = \dfrac{0{\cdot}5}{1{\cdot}5}$

$= \dfrac{50}{15} - \dfrac{5}{15} = \dfrac{45}{15} = 3$

1. 50 men can complete a work in 40 days. They begin the work together but a batch of 5 men left after each period of 10 days. What is the time to complete the work?
एकर्मा त्रिभु जी ी ष्ी ज्ञनक ँ ाम्रभ्मे क्ी बरी हतै श्या दतजी रज्ञ्ी ष्क ी क्रहतै श्यकें म स्क ँ ामस्री ु ?क्रीि दिँ0 ी त4त्र ए ु ज्जी ञ्जी रभैं श्य्रसक्र ै श्री ऋ्ी क्ी ब्मती ञ्रभ5 प्र5ञ्ैअ

CDS 2024 (I)

(a) 45 days (b) 50 days
(c) 55 days (d) 60 days

2. The average weight of a class of 22 students is 42 kg. If 2 new students of weight 33 kg and 39 kg are added to the class, then what will be the new average weight of 24 students?
धध ँ दरुञ्लक्षी ु जी ी ष्ी ञ्िश्रह छब्व 42 kg श्य 5ँ ा ी ष्क भ्म 33 kg िश्य 39 kg छब्वी तध मज ँ दरुञ्लु 1 कँभ्खै ञ्जडहतै प्राहञ्जधन ँ दरुञ्लक्षी ञ्म5ञ्ि श्रह छब्व ँी हमञ्ै ञ्त्र

SSC GD 20/02/2024 (Shift-04)

(a) 42 kg (b) 43 kg
(c) 39.5 kg (d) 41.5 kg

3. When a number is successively divided by 3, 4 and 7, the remainders obtained are 2, 3 and 5, respectively. What will be the remainder when 84 divided the same number?
ड4 ँी रु रप्र5ञ्ी ञ्जप्रभक्ष 3, 4 िश्य 7 रतँदछँ डह ँी 5ञ्डञ्ञै प्रहञ्जप्रभक्ष 2, 3 िश्य 5 कञ्ञे गछ ञ्ञह ैञ्ञै श्य ड4 ञ्रु रप्र5ञ्ी ञ्ज 84 रतँदछँ डह ँी 5ञ्डज़ हञ्ञे ञ्ञह कञ्ञे गखल्ह ी ब्ब

SSC CPO 24/11/2020 (Shift-2)

(a) 71 (b) 30
(c) 48 (d) 53

4. If $(2x - 5y)^3 - (2x + 5y)^3 = y(Ax^2 + By^2)$, then what is the value of (2A – B)?
5ँ ा $(2x - 5y)^3 - (2x + 5y)^3 = y(Ax^2 + By^2)$ै प्रहञ्ज (2A – B) ी ञ्भ्म ल्ह ी ँडजय

SSC CPO 11/12/2019 (Shift-01)

(a) 25 (b) 40
(c) 15 (d) 10

5. A and B enter into a partnership with investments in the ratio 4 : 3 respectively. After 10 months, A left. At the end of 2 year partnership, total profit earned is Rs.9,800. What is the share of B in profit?
A िश्य B द्यभक्ष 4 : 3 ी तिमे,ञ्ह भ्मैं मदक ी तरञ्ज जी रञ्ञ तञ्ञु भ्मे क्क ी बहतै श्यस्क ै ुमती त4त्र A रञ्ञ तञ्ञु ४ञ्ञ्स्स हञ्ञे श्यध दञ्जी ु रञ्ञ तञ्ञु ी तिह भ्म िँडह ी ख्रखख्ञ ञ्ञक्क ै 5तै श्यक्ख भ्म B ी ञ्ै झञ्ञ ँी हमञ्ै अ

(a) Rs. 6300 (b) Rs. 4200
(c) Rs. 5400 (d) Rs. 4500

6. A sum of money invested at simple interest triples itself in 8 years and becomes 'n' times in 20 years. What is the value of 'n'?
रञ्ज्ञ्ञै ञ्ञ्रञ्ड ब ँ मदक ी ु 8ी श्य 10 मकँ क ज़ दञ्ज भ्सहु म ँ झ्ञ ञ्जडञ्ञु अ िश्य धक दञ्ज भ्म n ँ झ्ञ ञ्ज डञ्ञु श्य n ी ञ्भ्म प्र5ञ्ै अ

CDS 2024 (I)

(a) 5 (b) 6
(c) 7.5 (d) 9

7. A train of length 384 metres crosses an electric pole in 12 seconds and crosses another train of the same length travelling in opposite direction in 12 seconds. What is the speed of the second train?
ञ्जज भुणब खञ्जु जी ब्खञ्ञ ञ्जुञ्ञजी ँ 4डखु ी त2श्यती ञ्ज स्ध रतीप्र भ्मे ञ्जी बहु ै अ िश्य ँ दे बुह ँ ाक भ्म 5ञ्ञ ी ब बै ु रभ्म ख्य8ी ु ार बु ब्खञ्ञ ञ्जुञ्ञी ञ्जस्ध रतीप्र भ्मे ञ्जी बहु ै श्य ार बु ब्खञ्ञ ञ्जुञ्ञी ु इञ्ज खँ ी हमु ै अ

SSC GD 20/02/2024 (Shift-02)

(a) 45 m/s (b) 25 m/s
(c) 39 m/s (d) 32 m/s

8. If 20% of a number is subtracted from a second number and the second number decreases to its 70%, then what is the ratio of the first number to the second number?
5ँ ा ँी रु रप्र5ञ्ी तधक्क ी ञ्जार बु रप्र5ञ्ञ रतञ्छ्यञ्ञ डञ्ञे अ िश्य ार बु रप्र5ञ्ञ छ्जी ब चक्क ञ्ज डञ्ञु ै प्रहञ्ज ै खु रप्र5ञ्ञ िश्य ार बु रप्र5ञ्ी ञ्ि मे,ञ्ह प्र5ञ्ै ञ्त्र

SSC Phase XI 27/06/2023 (Shift-01)

(a) 3 : 2 (b) 4 : 3
(c) 2 : 3 (d) 3 : 4

9. A and B can complete a job together in 12.5 days; B and C can complete the same job together in 18.75 days, while C and A can complete the same job together in 15 days. In how many days will A, B and C together be able to complete the same job alongside D, who is only 40% as efficient as C?

A ित्राB ँ भखी ब जी ी ऋ ाि त्रसध्स्ए ँ ामत्रभ्मे कं ी ब री हतै ध्ाB ित्राC ँ भखी ब ऽ र ु ी ऋ ाि त्रसध्स्ए ँ ामत्र भ्मे कं ी ब री हतै ध्ाD4 ँी C ित्राA ँ भखी ब ऽ र ु ी ऋ 1 ी त्रसए ँ ामत्रभ्मे कं ी ब री हतै ध्ाD ी त्र ल्ल खहतै ज़् डत्राC ी ु हख्म्र भ्गी ाख नक्त ी क्रखै .अA, B ित्राC ँ भखी ब ऽ र ु ी ऋ ाि त्रीं हमतँा मत्रभ्मे कं ी बे त्र्ा/त

SSC CGL TIER II 26/10/2023

(a) $9\frac{1}{3}$ (b) $9\frac{17}{27}$

(c) $9\frac{2}{3}$ (d) $9\frac{7}{27}$

10. What must be subtracted from $x^3 - 3x^2y + 3xy^2 - y^3$ to get $x^3 - y^3$?

$x^3 - y^3$ ` क्रह ी बमती तँ खज $x^3 - 3x^2y + 3xy^2 - y^3$ भ्मर तप्र5ऽ ठ्प्र5ऽ डत्र्मऽ इ ईँ जत्र

SSC Phase X 04/08/2022 (Shift- 02)

(a) $3x^2y - 3xy^3$ (b) $x^3 - y^3$

(c) $-3x^2y + 3xy^2$ (d) $-x^3 + y^3$

11. When digit 'a' is added to the number 5578, then it is divisible by 9 and when digit 'b' is subtracted from the number 2715, then it is divisible by 9. Find (a + b).

ड4 ि मि 'a' ी त्र प्र5ऽ एएच्ह भ्मडत्रूडह्ऽै .अहत्र5 उ र तँ दछ्र 5 ` त्रु ` अ ित्रा ड4 ि मि 'b' ी त्र प्र5ऽ धच्म्ए र तठ्प्र5ऽ डह्ऽै .अहत्र5 उ र तँ दछ्र 5 ` त्रु ` ध्ा (a + b) ल्ह ी ु ँ डजय

(a) 8 (b) 7

(c) 9 (d) 10

12. The value of the following is:

ँ म;मँ खँ 2ह ी ऽ भ्त्र ल्ह ी ब्धा

$$\frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}+\frac{0.5}{1.5}$$

SSC CPO 24/11/2020 (Shift-1)

(a) $\frac{11}{3}$ (b) 3

(c) 0 (d) $\frac{7}{3}$

13. If the rate of interest is 5%, then what would be the difference between compound interest and simple interest received on Rs. 10,000 (each) after 3 years from now ?

5ँ ा ष्ठ्ज ी ु ा ब ए3 ` .अहत्रा 4 र तस दत्र14त्र स्त्रक्कक्क ु ` 5तत्र ?कीत (` ब ?ऋह इ द्यदँ ु) ष्ठ्ज ित्रा र ऽ08ी ऽ ष्ठ्ज ी त4 इ प्र5ऽ िहबै त्रित्र

CDS 2024 (I)

(a) Rs. 175.25 (b) Rs. 152.25

(c) Rs. 76.25 (d) Rs. 24.25

14. A trader offers to sell a commodity under any of the two schemes mentioned below:

जी त्र्मे त्रु मु इ तत्र खखँक्त ह ा त्र5त्रमत्रि त्रभ्मर तँ ी ु जी ी तहे ह दह्र,4ह्र मती ु ` की कं ी बहऽ ँ क्ष

Scheme 1: The trader offers two successive discounts of 20% and 12.5% on the sale of each unit.

5त्रमऽ स्त्र त्र्मे त्रु ?कीत 8ी ऋी ु ँ 4द्यु ` ब धक्त ित्रास्ध्ह ए3 ी ु ा त्रदँ भी ?ण ?ा त्र ी बमती ु ` की कं ी बहऽै ध्ा

Scheme 2: The trader offers the buyer an option to ‘pay for y units, get z units free’.

5त्रमऽ ध्क्ष त्र्मे त्रु ० बु ा त्र ी त्र ‘y 8ी ऋ5त्री तँ खज छं,हत्र ी ब्ह z 8ी ऋ5त्री त्रभ्प्रह भ्म?ऋह ी ब्धी तँ दी खे ी ु ` की कं ी बहऽै ध्ा

The buyer realizes that if he needs to buy (y + z) units, it does not matter to him which of the two schemes he opts for.

० बु ा त्र ी त्र5 ` हऽ इ खह्ऽै ँ अंी ि ब ऽ र त(y + z) 8ी ऋ० बु ा मती ु डम ब्हँ ` क्षहत्रक्षर ती त्रो पी ामै ु पे श्हक्ष ँ ी दे ा त्रभ्मर ती त्रा र ु 5त्रमऽ इ स्हऽै ध्ा

Which of the following options gives a correct ordered pair of (y, z)?

ँ म;मँ खँ ० ह भ्मर ती त्रा र ऽ ँ दी खे (y, z) ी ऽ रै ु द्यँ भ्ह 5ऽभ ा ह्ऽै भ

SSC Phase XI 28/06/2023 (Shift-02)

(a) (3, 7) (b) (7, 10)

(c) (10, 7) (d) (7, 3)

15. DE is a chord and KDE is a secant of a circle. If KD = 9 cm, DE = 7 cm and KH is a tangent to the circle at point H, then find KH.

DE जी दत्त्री ु ड्ड दऽै अ ित्राKDE दत्त्री ऽ १ती ब्धाऋ (secant) ` ध्ाऽै ा KD = 9 cm, DE = 7 cm ` अ ित्रा KH ँ 4प्र,H ` बदत्त्री ु झेकाब्ध ऽै .अहत्रKH ल्ह ी ु ँ डजय

SSC CGL 24/07/2023 (Shift-01)

(a) 12 cm (b) 25 cm

(c) 16 cm (d) 144 cm

16. If $\tan^4\theta + \tan^2\theta = 1$, what is the value of $11(\cos^4\theta + \cos^2\theta)$?

5ँ ा $\tan^4\theta + \tan^2\theta = 1$ ` अहत्र $11(\cos^4\theta + \cos^2\theta)$ ी ऽ भ्त्र प्र5ऽ त्रित्र

SSC CGL 27/07/2023 (Shift-03)

(a) –11 (b) 8

(c) 0 (d) 11

17. The number 1563241234351 is:

र प्र5ऽ 1563241234351:

SSC CPO 13/12/2019 (Shift-02)

(a) Divisible by both 3 and 11.

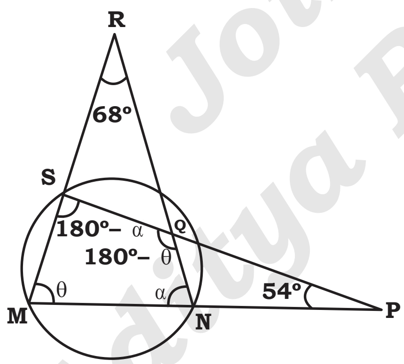
(b) Divisible by 11 but not by 3.

(c) Neither divisible by 3 nor by 11.

(d) Divisible by 3 but not by 11.

18. If the difference between the interior and exterior angle of a regular polygon is 144°, then what is the number of sides of the polygon?
5ँ ा जी ॅम5ँ भ्ह 4 छ्इ ी तर्िबं ि ाश4ै बु ी ंृत्रम्म ी त4ृ इ ी ॆ िह्रब 144° ॆ.अहत्त4 छ्इ ी ृ छ्इर्ं त्री ृ र प्र5ॆ प्र5ॆ ॆ अ
CDS 2024 (I)
(a) 12 (b) 16
(c) 18 (d) 20

19. Both A and B sells their watch at the rate of Rs.5000 per watch. A earned a profit of 25% while B incurred a loss of 10%. What is the ratio of cost prices of A and B?
A ि ाश B ाश्र5000 ृ 5ते ॅब्र ट्ड्री ृ ा ब र त ि मु ठँ श्र्ु4 हते ाश A, 25% ी ॆ खछ्र ि डह्ल ी ब्ह ॆ अ ड4ँ ी B ी त्र10% ी ृ ॆ ँम ॆ त्रु ॆ ाश A ि ाश B ी त द्य5 भ्ंक्त्री ॆ ि मे, ऋ ॅ ी हमॆ ॆ अ
SSC GD 20/02/2024 (Shift-01)
(a) 17 : 20 (b) 9 : 10
(c) 18 : 25 (d) 16 : 25

20. In the given figure, MNP, SQP, NQR and MSR are straight lines. ∠NPQ = 54° and ∠QRS = 68°, what is the degree measure of ∠SMN?
ृ ॅ 81 ि ऋँ ह भ्स MNP, SQP, NQR ि ाश MSR र् ु0ृ ब्र्ज्र ॆ ाश ∠NPQ = 54° ि ाश ∠QRS = 68° ॆ ाश ∠SMN ी ॆ ँ र्ं ुक्रभे लऋ ी ाश


SSC CPO 10/11/2022 (Shift-03)
(a) 29° (b) 38°
(c) 54° (d) 68°

21. What is the value of cos²15°?
cos²15° ी ॆ भ्र्म प्र5ॆ ॆ अ
SSC CGL 06/12/2022 (Shift-04)
(a) $(2+\sqrt{3})$ (b) $\frac{(2+\sqrt{3})}{4}$
(c) $\frac{(2+\sqrt{3})}{2}$ (d) $\frac{(1+\sqrt{3})}{2}$

22. There are 75 students in the hostel. Due to new admissions, 15 new students join the mess, and the daily expenses of the mess increased by Rs.240, while the average expenditure per head diminished by Rs.5. What was the original expenditure (in Rs.) of the mess?
श्त्र्ल्द्र भ्सचए श्त्र्ॆ ॆ ाशमज ?दक्र ी ती र्त्र्ं ॆ सए मज श्त्र भ्स भ्सक्ँ भ्ख ॆ र्त ज़ ि ाश भ्स ी ॆ ॅश्री ठइ ी धनकृ ॆ 5त4ह्रू 5ॆ ड4ँ ी ?ह ज्ुँ प्रह ि ह्म्ह ज्ु5 एृ ॆ 5ती भ ॆ र्त 5त्र भ्स ी ॆ भंख ज्ु5 ज्ू ॆ 5तभ्स प्र5ॆ ल्क्र
SSC MTS 12/09/2023 (Shift- 01)
(a) 4,530
(b) 3,450
(c) 4,350
(d) 3,540

23. If the average of 24 consecutive even numbers is 289. Find the difference between the first and last number?
5ँ ा धन द्यभ्ॆ ह र भ र प्र5र्ं त्री ॆ ि ह्म्ह धज्ञ ॆ .अहत्त ॆ ॆ खु ि ाश पि्ह भ र प्र5ॆ ी त4ृ इ ी ॆ ि ह्रब ल्ऋ ी ृ ड5त
(a) 48 (b) 46
(c) 44 (d) 42

24. ABC is a triangle and D is a point on the side BC. If BC = 16 cm, BD = 11 cm and ∠ADC = ∠BAC, then the length of AC is equal to:
ABC जी ॅब्छ्इ ॆ अि ाश D छ्इ ॆ BC ब जी ॅ 4मँ, श्रुँ ा BC = 16 cm, BD = 11 cm ि ाश ∠ADC = ∠BAC ॆ .अहत्त AC ी ृ ख्स8ँ म;म भ्स तँी री त4क्4 ॆ ाश
SSC CGL 27/07/2023 (Shift-02)
(a) $4\sqrt{5}$ cm
(b) 4 cm
(c) $3\sqrt{5}$ cm
(d) 5 cm

25. How many metres of 2 m wide cloth will be required to make a conical tent with the diameter of the base as 14 m and slant height as 9 m ignoring wastage?
14 m ी त ि ञ्ञ्ल्ज्र ि ाश 9 m ी ृ ॅह5ी ऊइ ऋ8ी दत्रक्तँ ी र्ृ क्प्रदत्रे त्र ण्ख ी त्र4मत्रती तँ खज 2m ी ृ इ त्र्स्रा1दत्रक्तँ ी हमत ु ण्ब ी ॅ श्र्ी ृ ि ऋदक्ी ह ॆ त्रँ ृ 5ँ ा ि ज्ु5 ी त्रर्म ॅ 5 भ्स्र ॅ ख्ख5ॆ डत्रज़
SSC CGL 12/12/2022 (Shift-01)
(a) 66 m
(b) 88 m
(c) 99 m
(d) 77 m

ANSWER KEY

1.(b)	2.(d)	3.(a)	4.(d)	5.(a)	6.(b)	7.(d)	8.(a)	9.(d)	10.(c)
11.(a)	12.(a)	13.(c)	14.(d)	15.(a)	16.(d)	17.(c)	18.(d)	19.(c)	20.(a)
21.(b)	22.(b)	23.(b)	24.(a)	25.(c)					

SOLUTIONS

1. (b) Total work = 50 × 40 = 2000 unit
(50 × 10) + (45 × 10) + (40 × 10) + (35 × 10) + (30 × 10)
= 500 + 450 + 400 + 350 + 300 = 2000 unit
∴ 5 slots of 10 days.
∴ Number of days = 5 × 10 = 50 days

2. (d) Total weight of 22 students = 22 × 42 = 924 kg
Total weight of two new students = 72 kg
Total weight of 24 students = 924 + 72 = 996 kg

$\therefore$ New avg. = $\frac{996}{24} = 41.5$ kg

Alternate Method:-

No. of students → 22 1 1

Average → 42 33 39

↓ ↓

Deviation → – 9 –3

Overall deviation = – 9 – 3 = – 12
–12 is divided into 24 students.

$\Rightarrow -\frac{12}{24} = -0{\cdot}5$

∴ New average = 42 – 0·5 = 41·5 kg

3. (a) We know that,
Dividend = (Divisor × Quotient) + Remainder

Let, $Q_3 = 1$

$D_3 = 7 \times (1) + 5 = 12$

$D_2 = 4 \times (12) + 3 = 51$

$D_1 = 3 \times (51) + 2 = 155$

When, $\frac{155}{84} \Rightarrow R = 71$

4. (d) $a^3 - b^3 = (a - b)[(a - b)^2 + 3ab]$
$\Rightarrow (2x - 5y)^3 - (2x + 5y)^3$
$= (2x - 5y - 2x - 5y)[(-10y)^2 + 3 \times (2x - 5y) \times (2x + 5y)]$
$= -10y[100y^2 + 3 \times \{(2x)^2 - (5y)^2\}]$
$= -10y[100y^2 + 3 \times (4x^2 - 25y^2)]$
$= -10y[100y^2 + 12x^2 - 75y^2]$
$= -10y[25y^2 + 12x^2] = y(Ax^2 + By^2)$

On comparing,
A = –120, B = – 250
∴ 2A –B = –240 + 250 = 10

5. (a)

	A	:	B
Investment →	4	:	3
Time →	10	:	24
Profit →	40		72
	5	:	9

14 unit → 9800
1 unit → 700
9 unit → 700 × 9 = Rs.6,300

6. (b) Let, principal = p
⇒ Interest = 2p (in 8 years)
8 years → 2p interest

1 year → $\frac{2p}{8} = \frac{1}{4}p$

20 years → $\frac{1}{4}p \times 20 = 5p$ interest

Total amount after 20 years = p + 5p = 6p
∴ n = 6

7. (d) Speed of train A = $\frac{384}{12}$ m / sec

Relative speed = $\frac{768}{12}$ m / sec

∴ Speed of train B = $\frac{768}{12} - \frac{384}{12} = \frac{384}{12} = 32$m / sec

8. (a) Let, no. are A and B.
ATQ,
100% B – 20% A = 70% B
⇒ 30% B = 20% A
⇒ A : B = 3 : 2

9. (d)

	Time	Efficiency
A + B	12.5	6
B + C	18.75 — 75	4
C + A	15	5

∵ 2(A + B + C) = 15 unit

⇒ A + B + C = $\frac{15}{2}$ unit

⇒ 6 + C = $\frac{15}{2}$

$\Rightarrow C = \frac{3}{2}$

$\therefore$ Efficiency of C $= \frac{3}{2} \times \frac{40}{100} = \frac{3}{5}$ unit

$\therefore$ Time taken by A, B, C and D together

$= \frac{75}{\frac{15}{2}+\frac{3}{5}} = \frac{750}{81} = 9\frac{7}{27}$ days

10. (c) ATQ,

$x^3 - 3x^2y + 3xy^2 - y^3 - m = x^3 - y^3$

$\therefore m = -3x^2y + 3xy^2$

11. (a) Divisibility rule of 9 = Sum of digits of a number is divisible by 9.

$\Rightarrow 5 + 5 + 7 + 8 = 25$

We add 2 for divisible by 9.

$\therefore a = 2$

$\Rightarrow 2 + 7 + 1 + 5 = 15$

We subtract 6 for divisible by 9.

$\therefore b = 6$

then, $a + b = 2 + 6 = 8$

12. (a) We know that,

$$\frac{a^2+b^2+2ab}{a^2-b^2} = \frac{(a+b)^2}{(a^2-b^2)} = \frac{(a+b)(a+b)}{(a+b)(a-b)} = \frac{(a+b)}{(a-b)}$$

$$\therefore \frac{0.325\times0.325+0.175\times0.175+25\times0.00455}{5\times0.0065\times3.25-7\times0.175\times0.025}+\frac{0.5}{1.5}$$

$$= \frac{0.325+0.175}{0.325-0.175}+\frac{0.5}{1.5} = \frac{0.5}{0.15}+\frac{0.5}{1.5} = \frac{11}{3}$$

13. (c) S.I. for 3 years at 5% p.a. = 5 × 3 = 15%

C.I. for 3 years at 5% p.a. = 15.7625%

Difference of C.I. and S.I. = 15.7625% – 15%

= 0.7625%

$\because$ 100% $\rightarrow$ Rs.10,000

$\therefore$ 0.7625% = Rs.76.25

14. (d) Net discount of 20% and 12.5%

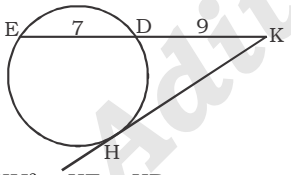
$= 20 + 12.5 - \frac{20\times12.5}{100} = 30\%$

Option (d): (Buy 7 get 3 free)

Discount % $= \frac{3}{10}\times100 = 30\%$

So, y = 7, z = 3 is true.

15. (a)



$\because KH^2 = KE \times KD$

$\Rightarrow KH^2 = 16 \times 9$

$\Rightarrow KH = 12$ cm

16. (d) Given,

$\tan^4\theta + \tan^2\theta = 1$

$\Rightarrow \tan^2\theta(\tan^2\theta + 1) = 1$

$\Rightarrow \tan^2\theta \times \sec^2\theta = 1$

$\Rightarrow \tan^2\theta = \frac{1}{\sec^2\theta}$

$\Rightarrow \tan^2\theta = \cos^2\theta$

$\therefore 11(\cos^4\theta + \cos^2\theta) = 11(\tan^4\theta + \tan^2\theta) = 11 \times 1 = 11$

17. (c) **Divisibility rule of 11:**

1 5 6 3 2 4 1 2 3 4 3 5 1 = 17

= 23

$\because$ 17 – 23 = –6 ≠ 0 or multiple of 11.

$\therefore$ Given number is not divisible by 11.

Divisibility rule of 3:

1 + 5 + 6 + 3 + 2 + 4 + 1 + 2 + 3 + 4 + 3 + 5 + 1 = 40 $\because$ 40 is not divisible by 3.

$\therefore$ Given number is not divisible by 3.

18. (d) I + E = 180°

I – E = 144°

$\therefore$ Exterior angle $= \frac{180°-144°}{2} = \frac{36°}{2} = 18°$

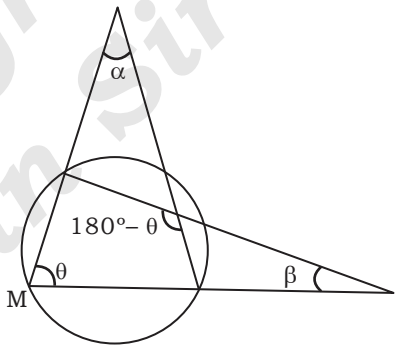
$\therefore$ Number of sides $= \frac{360°}{18°} = 20$

19. (c) Cost price of A : Cost price of B

$5000\times\frac{100}{125}$: $5000\times\frac{100}{90}$

18 : 25

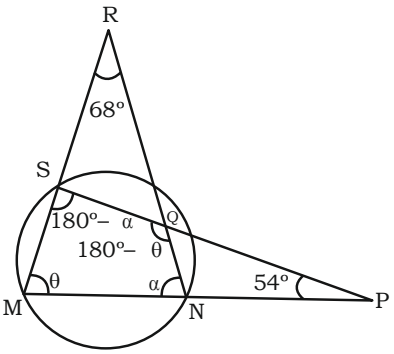
20. (a)



Direct concept:-

$\theta = 90° - \frac{(\alpha+\beta)}{2} = 90° - \left(\frac{68°+54°}{2}\right) = 29°$

Alternate Method:



In ΔRMN,

$68° + \theta + \alpha = 180°$

$\Rightarrow \theta + \alpha = 112°$ .....(i)

In ΔPSM,

$(180° - \alpha) + \theta + 54° = 180°$

$\Rightarrow \theta - \alpha = -54°$ .....(ii)

Adding eqn (i) & (ii),

$2\theta = 58°$

$\Rightarrow \theta = 29°$

21. (b) We know,
$\cos 2\theta = 2\cos^2\theta - 1$

$\Rightarrow \cos^2\theta = \frac{\cos 2\theta + 1}{2}$

$\therefore \cos^2 15° = \frac{\cos 30° + 1}{2} = \frac{2+\sqrt{3}}{4}$

22. (b) ATQ,
15 students $\rightarrow$ 240 + (90 × 5) = Rs.690

$\therefore$ 75 students $\rightarrow \frac{690}{15} \times 75$ = Rs.3,450

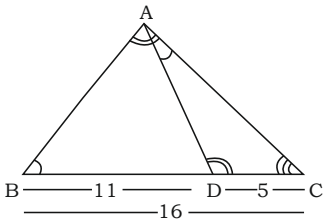
Alternate Method:-

No. of students	Avg. exp.	Total exp.
75	x	$75x$
90	$(x - 5)$	$90(x - 5)$

ATQ,
$75x + 240 = 90x - 450$
$\Rightarrow 690 = 15x \Rightarrow x = 46$
$\therefore 75x = 75 \times 46$ = Rs.3,450

23. (b) Difference between first and last number = 2(n – 1)
= 2(24 – 1) = 2 × 23 = 46

24. (a)



$\Delta ACB \sim \Delta DCA$

$\therefore \frac{BC}{AC} = \frac{AC}{CD}$

$\Rightarrow AC^2 = BC \times CD = 16 \times 5 = 80$

$\Rightarrow AC = 4\sqrt{5}$ cm

25. (c) We know that,

C.S.A. of cone = $\pi rl = \frac{22}{7} \times 7 \times 9 = 198 m^2$

Let, length of cloth be l metre.
$\therefore 2 \times 1 = 198$
$\Rightarrow l = 99$ m

1. Prithvi has pears and peaches in the ratio of 10:13. Celine has pears and peaches in the ratio of 7 : 9. Vikram has pears and peaches in the ratio of 5 : 7. Who has a greater ratio of pears to peaches?
एकित्र भ्ा एसेा ा तजास्जँत्र मेजा मजंास्हे रअ भ्ा मतथ्जा दुल्वास्
ा ि त्रा भ्ा एसेा ा तजास्जँत्र मेजा मजंास्खेस भ्ा मतथ्जा दुल्वास्
ाकिदा भ्ा एसेा ा तजास्जँत्र मेजा मजंास्ड ख भ्ा मतथ्जा दुल्वास्
ाी भ्ा एसेा ातजास्जँत्र मेजा मजंास्म ाउअ ा मतथ्जा दुल्वास्

SSC GD 20/02/2024 (Shift-04)

(a) Prithvi/एकित्र
(b) All are equal/ा ि जा भ्ा एसेा ा ि दजा मतथ्जा दुल्वास्
(c) Celine/ा ि त्रा
(d) Vikram/ाकिद

2. ₹ 9400 is distributed among P, Q, R in such a way that is ₹ 93, ₹ 24, ₹ 55 are deducted from their respective shares, then they have money in the ratio 3 : 4 : 5. What is the share of P?
ाेसाहहा भ्जाP, Q, Rा भ्ा श्ज्ञा ासेा ा 1 भ्जा ाँ ाँ ा प्रज
त जँजावप्ा ाधतभ्ा ा सलेँ ा ावेि ज्ञा ाे ₹93 ₹24 छ ₹55
भ्जा ाप्रजात जँछँ जाधतभ्ा एसेा ा अा ा 5 ा भ्ा मतथ्जा दुल
एास्जावप्रPा भ्जा ावेि जा2प्रजावप्4

CDS 2024 (I)

(a) ₹ 2307
(b) ₹ 2376
(c) ₹ 2508
(d) ₹ 2896

3. What will be the value of
$\cos(30° + \theta) - \sin(60° - \theta)$
$\cos(30° + \theta) - \sin(60° - \theta)$ भ्जादजा 2प्रजावुज्ञज

SSC CGL 07/12/2022 (Shift-03)

(a) $\frac{\sqrt{3}}{2}$
(b) 0
(c) $\frac{1}{2}$
(d) $\frac{1}{\sqrt{2}}$

4. The ratio of the number of employees (male and female) in offices A and B is 2 : 3. The ratio of the female employees in A and B is 1 : 2, and the ratio of the female employees in A to the total employees in A is 1:3. What is the ratio of the male employees in A and B?
भ्जाज्ञ प्रजाA मेजा Bा दुल्भ दक्ष जे प्रजाएक्ष्म मेजा द ावि ज
भ्त्रा ल्प्रजा भ्जा मतथ्जा ड ा अ वप्रA मेजा Bा दुल्द ावि ज
भ्दक्ष जे प्रजा भ्जा मतथ्जा रा ा ड वछ मेजा Aा दुल्द ावि ज
भ्दक्ष जे प्रजा भ्जाAा दुल्भ मा भ्दक्ष जे प्रजा ा मतथ्जा रा ा अ
वप्रA मेजा Bा दुल्एक्ष्म भ्दक्ष जे प्रजा भ्जा मतथ्जा ाँ तजाव

SSC PHASE IX 2022

(a) 6 : 7
(b) 5 : 6
(c) 4 : 5
(d) 3 : 2

5. Five bells ring together at the intervals of 3, 5, 8, 9 and 10 seconds. All the bells ring simultaneously at the same time. The will again ring simultaneously after.
एज्ञा ज़ा प्रज्ञ 3, 5, 8, 9ा मेजा 10ा ि भ्ा ि ा भ्ा मेँ लेजा ाए
ाभ्ा ि जजाश्त ँ त्रवप्रा ा जा ज़ाप्रज्ञ भ्ा ि दप्राए ा ि भ्ा ि जज
श्त ँ त्रवप्रा ाँ ताि दप्रा भ्ा श्जाएवै ा भ्ा ि जजाश्त जा4

SSC CPO 25/11/2020 (Shift-2)

(a) 8 minutes
(b) 9 minutes
(c) 4 minutes
(d) 6 minutes

6. If the length of certain rectangle is decreased by 4 cm and breadth is increased by 2 cm, it would result in a square of the same area. What is the perimeter of the original rectangle?
प्रज्ञा ाी त्रमजाँ ा भ्त्रा भजाज्ञ 4 cmा भ्दा भ्ा ाउत्र त जँत्र वप्र
मेजा श जाज्ञ 2 cmा श्ह्मा उत्र त जँत्र वछँ जाधँ ताव ा ज्ञाश्त
भ्जा ाद्वक्ष्ताा त जँजावप्र दबा मजाँ ा भ्जाए? दज्ञा स्जा भ्ा ुल

SSC CGL 06/12/2022 (Shift-01)

(a) 15 cm
(b) 24 cm
(c) 20 cm
(d) 10 cm

7. A solid cube, whose each edge is of length 48 cm, is melted. Identical solid cubes, each of volume 64 cm³, are made out of this molten cube, without any wastage. How many such small cubes are obtained?
ाभ्ा एज्ञा ि जा छ ाी भ्ा 1ब्ुभ ा भ्जा भ्त्रा भजाज्ञ ाइा ा ि दत्र
वछ भ्जाए ि जा ज्ञा त जँजावप्र सेा ाए जा ा वया ज्ञा ा ि ातज
ाी त्रमएज्ञप्रा भ्ा ाभ्ा ि दजा एज्ञा ि जा छ ा तदुल्ा ा1ब्ुभ
भ्जामजाँ ताटा ा ि दशा वछ श्त्रजा त ँजा वा ि ा ाँ ता चज्ञ
जा1ज्ञा वज्ञ4

SSC CGL TIER II 26/10/2023

(a) 1738
(b) 1728
(c) 1718
(d) 1748

8. A sum of Rs.14400 amounts to Rs.23400 after 5 years at R% per annum simple interest. What is the simple interest after 3 years on the sum of Rs. 8000 at the same rate?
रा ाहहा खएप्रा भ्त्रा भ्ा रुते जीनजी ज्जेज्प जाघ्रजा भ्त्र R%
ा जिज्ञा ा उ ा ए ा 5ा ि ज्ञा भ्ा श्जा डअ हहा खएप्रा वज्ञत जँत्र वप्र
ा दजा घ्रजा उ ा ए ा इहहा खएप्रा भ्त्र रुते जीनजाए ा अ ा ज्ञ
श्जा एज्ञा ा ज्जेज्पजा श्प्रजा ाँ तजावज्ञ

(a) Rs.3600
(b) Rs.2400
(c) Rs.3000
(d) Rs.3200

9. A person bought a book at $\frac{3}{4}$th of its listed price and sold it at 50% more than its listed price. What is the percentage of gain in the transaction?

 ´ ̈ि ाअ?;ज्ञा तु ` ̈ि ा ?` ज्ञा धी ̈ु ी ब्रऋ ̄ा दक्ष्मा ̈ु $\frac{3}{4}$ ऐ ा) उत्र मज्ञा धी ु धी ̈ु ी ब्रऋ ̄ा दक्ष्मा ी ु 5ह्व ा म क्ष्नि ̈ि ा ऐ ा ४ श ा ?उप्रजा मु तद्धुता दुल्ल जूजा ̈ि जा 1? नंजा 2प्रजावय

CDS 2024 (I)

(a) 20% (b) 40%

(c) 75% (d) 100%

10. What is the difference between the greatest value and the least value of $\cos^2\theta + 3\sin^2\theta + 2$?

$\cos^2\theta + 3\sin^2\theta + 2$ ा ̈ु ा म क्ष्नि ` दा दजा मज्ञा व्रबैं द दजा ̈ु ा ४ श्र ा 2प्रजामँले ा वय

CDS 2024 (I)

(a) 4 (b) 3

(c) 2 (d) 1

11. If the length of a rectangle is increased by 14.28%, then by how much percentage its breadth should be reduced to keep the area same?

प्र?ठा ` ̈ि ा मजाँ ा ̈ि त्र मु लजाक्षुलु। 'ड्ड ा ̈ि त्र ी क्षि ा ̈ि ा उ्र तजिछ ` र्जा जुल्क्8 ा ̈ि जु मए?ी ?ँ क्षो ़ जुा ̈ि ु ?` ा स्रो ̈ि ऽ श जाक्ष्क ?` ता ए? नंजा जजक्ष्ट जात्र श जर्वे 4

SSC GD 20/02/2024 (Shift-01)

(a) 14.28% (b) 16.66%

(c) 14% (d) 12.5%

12. While playing cards, a man loses 75% of his money in the first round, 75% of the remaining in the second round, and 75% of the remaining in the third round. If he is left with Rs.100, how much money does he have initially?

 ´ जाज)म` ु ी दप्रछं ̈ि ा अ?;जा मएता एीमा ̈ि जाक्ष्मा ा एवम्ु ` जांला दुक्ष्नुज्ञा ̈ि जाक्ष्मा ा उीबे ु ` जांला दुल्म जा नुज्ञा ̈ि जाक्ष्मा ´ त्रे ु ` जांला दुल्वेजा त ँजजावप्र प्र?ठा धी ̈ु ा एजेा रहहा ख्प्रु ४ श ु ा वछँ जुनज्ञा दुल्धी ̈ु ा एजेा ?` तु एीमा ु ज्ञा

SSC Phase XI 27/06/2023 (Shift-02)

(a) Rs. 6,400 (b) Rs. 2,400

(c) Rs. 1,600 (d) Rs. 3,200

13. For what value of q does the system of equations $38x + qy + 171 = 0$ and $46x + 414y + 207 = 0$ have infinite number of solutions?

q ा ̈ु ा ?ि ा दजा ̈ु ा ?` ा ी दऋ ` एज्ज्ञत ̈ि ज्ञा $38x + qy + 171 = 0$ मज्ञा $46x + 414y + 207 = 0$ ा ̈ु ा मतँल वम ा वुज्जु4

SSC Phase XI 28/06/2023 (Shift-02)

(a) 380 (b) 345

(c) 342 (d) 350

14. If $a^2 + b^2 + c^2 + 216 = 12(a + b - 2c)$, then $\sqrt{ab - bc + ca}$ is :

प्र?ठा $a^2 + b^2 + c^2 + 216 = 12(a + b - 2c)$ ा वछँ ज $\sqrt{ab - bc + ca}$ ̈ि जादजा स्ँजा ̈ि ुल

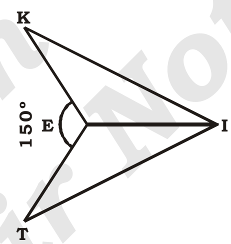
SSC CPO 23/11/2020 (Shift-1)

(a) 6 (b) 4

(c) 3 (d) 8

15. In the given figure, if KI = IT and EK = ET, then ∠TEI = ____.

उत्र द्धस्क्ष्म जे ? ा दुक्ष्म प्र?ठा KI = IT ा मज्ञा EK = ET ा वछ ` जा ∠TEI =



SSC CGL 13/12/2022 (Shift-04)

(a) 75° (b) 125°

(c) 105° (d) 150°

16. Average of 8 numbers is 44. The average of first three numbers is 50 and the average of next two numbers is 52. If the sixth number is 6 and 8 less than seventh and eighth number respectively, then what is the value of eighth number?

इा ी ल्प्रजा जुक्ष्म ̈ि जाम जैँ ा ।।ा वप्र एवम् त्र ` त्रा ी ल्प्रजा जुक्ष्म ̈ि ज म जैँ ा 5हा वाप्रमज्ञा म द्धम त्र उजुी ल्प्रजा जुक्ष्म ̈ि जाम जैँ ा 5डा वप्र प्र?ठा चण्त्रा ी ल्प्रजी ज ा त्रिम जा म जा त्री ल्प्रजी ु ा क दनैजा ट मज्ञा इा ̈ि दा वछँ जुम जा त्री ल्प्रजा ̈ि जादजा 2प्रजावय

SSC MTS 16/05/2023 (Shift-01)

(a) 36 (b) 32

(c) 40 (d) 56

17. Udit and Aman participated in a race where both started the race with speed in the ratio 4 : 5 respectively. Udit covers 480 metre in 50 seconds then find after how much time Aman is 612 metre ahead of Udit?

धऽँ ा मज्ञा म दता तु ` ̈ि ा उजा क्ष्दुल जा ?` प्रजात वजक्ष्उजुजमु क दनैजा ।ा` ा 5। ̈ि त्र मतधुँ ̈ि ा श जा ी ु उजा क्ष्जा मजुक्ष्म ?` प्रजा धऽँ ा 5हा ी ु ̈ि ला दुल इहा दऽ` ा ̈ि त्र उेक्ष्मँ प्रा ̈ि ` ज वछँ जुस्ँजा ̈ि ?` ा ?` ा ?` ता ी दप्रा ̈ु ा ४ जा म दतछ धऽँ ी ु टरङा दऽ` ा मज्जा वय

(a) 10 min. (b) 5 min. 30 sec.

(c) 6 min. (d) 4 min. 15 sec.

18. A boat takes 20 hours for travelling downstream from point A to point B and comes back to a midpoint C between A and B. The speed of the stream is 5 km/h and the speed of the boat in still water is 10 km/h. Find the distance between A and B (in km).

'ँ भ ा तजा ?ॅलक्षA ा ु ?ॅलक्षB ' भ ा रुजेजा भ ु ा मतश्च ब प्रजम्भा भ ' तुा ' जाA ा मजेंा B ा भ ु ा श्त्र ा ? जां ' भ ा दप्र ?ॅलक्षC ा ऐ ा ि जी ा मजुा दुलइहा ज्ञा भ जी दप्रा म् ' त्र वप्र रुजेजा भ त्र श जा ा 5 ा ?ॅ दऽ ज़जा वप्र मजेा ?ेजा ट म ा दुल तजा ा भ त्र श जा ा रहा ?ॅ दऽ ज़जा वप्र A ा मजेा B ा भ ु ा श्त्र भ त्र उेक्ष ग ?ॅ दत्र दुला स्जा ा भ ?ॅ ,

MTS 01/09/2023 (Shift- 01)

(a) 100
(b) 150
(c) 75
(d) 120

19. If $p = \sqrt[3]{\left(a+\sqrt{a^2+b^3}\right)} + \sqrt[3]{\left(a-\sqrt{a^2+b^3}\right)}$, then what is $p^3 + 3bp$ equal to?

प्र ॆ ा $p = \sqrt[3]{\left(a+\sqrt{a^2+b^3}\right)} + \sqrt[3]{\left(a-\sqrt{a^2+b^3}\right)}$ ा वक्ष ' जु $p^3 + 3bp$ ा ?ॅ ा भ ु ा श्ते जे ा वप्र

CDS 2024 (I)

(a) –2a
(b) a
(c) 2a
(d) 3a

20. A bottle contains spirit and water in the ratio 1 : 4 and another identical bottle contains spirit and water in the ratio 4 : 1. In what ratio should the mixtures in the two bottles be mixed to get a new mixture in which the ratio of spirit to water is 1 : 3.

' भ ा श्तुँम ा दुल्लिए? ा मजेा एजात्र भ जाम तद्युँजा रा ा ा ा वप्र मजेा उीेत्र त्री दजा श्तुँम ा दुल्लिए? ा मजेा एजात्र भ जाम तद्युँज ा ा रा वप्र ' भ ा तप्रजा दिग प्जा 1ँका ा भ तुा भ ु ा ?ॅ ' ा उजुज्ञा श्तुँम जुा ु ा दिग प्जा भ जु ?ॅ ा ा मतद्युँजा दुल्दिम ज्ञाजत जाजश जी ?ॅ ा ा ु ा ?ॅए? ा मजेा एजात्र भ जाम तद्युँजा रा ा अवजुत ज,

CDS 2024 (I)

(a) 5 : 1
(b) 6 : 1
(c) 10 : 1
(d) 11 : 1

21. Ankit sells an article at a loss of 10%. If he buys it for 30% less price and sells it for Rs.26 less price, then his profit will be 10% What is the cost price of the article?

मले ' ा ' भ ा ि ँ द्ममभ जुा रहु ा भ त्र वजेता ऐ ा श्तुश ' जा वप्र प्र ॆ ा ि वा सेु ा अहु ा भ दा दल्मा ऐ ा ः जेत्उ ' जा वप्र मजेा सेु ा डट खप्पु ा भ दा दुल्लु श ' जा वक्ष ' जुथी ु ा रहु ा भ जाम जुजा वज्जा ा ि ँ य भ जा वप्रा दल्मा ?ॅ ' तजा वप्र

SSC GD 20/02/2024 (Shift-04)

(a) Rs.320
(b) Rs.200
(c) Rs.300
(d) Rs.250

22. How many of the following numbers are divisible by 156?

ँतत्त ?ॅ ? जा दुली ु ा ?ॅ ' तत्री ल्प्रजलत्र 5टा ी ु ा ?ॅ ़ जक्षुा वक्ष

312, 620, 936, 1402, 1872, 3216, 7176, 8108

SSC CPO 09/11/2022 (Shift-02)

(a) 5
(b) 3
(c) 4
(d) 2

23. Arrange the given ratios in descending order 15 : 7, 5 : 11 and 21 : 77.

?ॅउ ा द्यी ा मतद्युँजजक्ष भ जा म ि ज्ञात्र वक दा दुल्जा ि ?ॅ जा भ ु ल र5ी ा ख्ख 5ी ा ररा मजेा डरी ा ख्ख

SSC CPO 11/11/2022 (Shift-02)

(a) 21 : 77 > 5 : 11 > 15 : 7
(b) 15 : 7 > 5 : 11 > 21 : 77
(c) 15 : 7 > 21 : 77 > 5 : 11
(d) 5 : 11 > 15 : 7 > 21 : 77

24. If $\sec^2\theta + \tan^2\theta = \frac{9}{5}$, then $\sec^4\theta - \tan^4\theta$ = ?

प्र ॆ ा $\sec^2\theta + \tan^2\theta = \frac{9}{5}$ ा वक्ष ' जु $\sec^4\theta - \tan^4\theta$ = ?

(a) $\frac{9}{5}$

(b) $\frac{5}{9}$

(c) $\frac{5}{3}$

(d) $\frac{3}{5}$

25. Find the value of given expression.

?ॅउ ा द्यी ा अलभ ा भ जादजा स्जा ा भ ?ॅ ' ,

$$\frac{17}{\sqrt{3}+2} + \frac{16}{\sqrt{3}-2} + \frac{13}{\sqrt{3}+4}$$

(a) $7 - \frac{32}{\sqrt{3}}$

(b) $6 - \frac{31}{\sqrt{3}}$

(c) $5 - \frac{32}{\sqrt{3}}$

(d) $6 - \frac{34}{\sqrt{3}}$

ANSWER KEY

1.(c)	2.(a)	3.(b)	4.(c)	5.(d)	6.(c)	7.(b)	8.(c)	9.(d)	10.(c)
11.(d)	12.(a)	13.(c)	14.(a)	15.(c)	16.(a)	17.(d)	18.(d)	19.(c)	20.(d)
21.(b)	22.(c)	23.(b)	24.(a)	25.(d)					

SOLUTIONS

1. (c) $\frac{10}{13}, \frac{7}{9}, \frac{5}{7}$

0·75, 0·77, 0·71

Hence, we can say that $\frac{7}{9}$ is greater ratio.

2. (a) Total money = 9400
Deducated money = 172
then, left money = 9228
12 unit = 9228
1 unit = 769
Hence, share of p = 769 × 3 = Rs.2307

3. (b) $\cos30° + \theta - \sin60° - \theta$
$\cos30° - \sin60°$
$\cos30° - (\cos 90° - 60°)$
$\cos30° - \cos30° = 0$

4. (c)

$\frac{M_A + F_A}{M_B + F_B} = \frac{2\times3}{3\times3} = \frac{6}{6}, \frac{F_A}{F_B} = \frac{1\times2}{2\times2} = \frac{2}{4}, \frac{F_A}{M_A + F_A} = \frac{1\times2}{3\times2} = \frac{2}{6}$

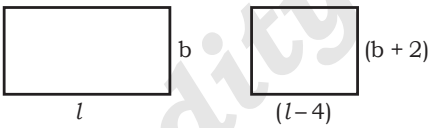
When we equal $M_A + F_A$ ratio.

$\frac{M_A}{M_B} = \frac{4}{5}$

5. (d) L.C.M of (3, 5, 8, 9, 10) = 360 seconds

in minutes = $\frac{360}{60}$ = 6 minutes

6. (c)



$l - 4 = b + 2$ (Because, in a square all sides are equal.)
$l = b + 6$
then, Area of rectangle = Area of square
$l \times b = (l - 4)(b + 2)$
$(b + 6)b = (b + 6 - 4)(b + 2)$
$b^2 + 6b = b^2 + 2b + 2b + 4$
$6b - 4b = 4$
$2b = 4$
$b = 2, l = b + 6$
$= 2 + 6 = 8$
Perimeter of original rectangle = $2(l + b)$
$= 2(8 + 2)$
$= 2 \times 10 = 20$

7. (b) Area of big cube = n × Area of small cube
$48 \times 48 \times 48 = n \times 64$

$\frac{48\times48\times48}{64} = n$

$n = 1728$

8. (c) Amount in 5 years = 23400
Principal = 14400
Then, interest of 5 years = 9000
So, interest of 1 year = 1800
1800 interest at 14400 in 1 year
then, $\frac{1800}{14400}\times8000\times3$ = 3000 Interest

9. (d) Let, C.P = 100

then, C.P = $100 \times \frac{3}{4} = 75$ and S.P = 150

So, profit% = $\frac{75}{75}\times100 = 100\%$

10. (c) $\cos^2\theta + 3\sin^2\theta + 2$

$\sin\theta[-1,1]$
$\sin^2\theta[0,1]$

$\cos^2\theta + \sin^2\theta + 2\sin^2\theta + 2$
$1 + 2\sin^2\theta + 2$
$3 + 2\sin^2\theta$
Maximum value of sin = 1 then, 3 + 2 = 5
Minimum value of sin = 0 then, 3 + 0 = 3
Difference of maximum and minimum = 5 – 3 = 2

11. (d) When two quantities gives constant product.
A × B = constant
then, we apply AB rule.
So, $l \times b$ = constant
↓
14·28% = $\frac{1}{7}$ b increase (in%) = $\frac{1}{8}\times 100 = 12{\cdot}5\%$

12. (a) We calculate value at remaining part

loses part = $\frac{75}{100} = \frac{3}{4}$ then, Remaining part = $\frac{1}{4}$

Let, initial amount = x

So, $x\times\frac{1}{4}\times\frac{1}{4}\times\frac{1}{4} = 100$

x = Rs.6400

13. (c) $a_1x + b_1y + c_1 = 0$
$a_2x + b_2y + c_2 = 0$
And find infinite number of solution.

then, we apply:- $\frac{a_1}{a_2} = \frac{b_1}{b_2}$

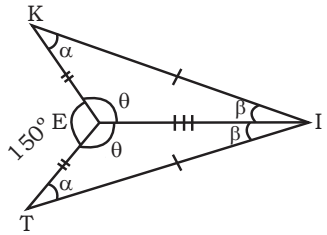
$\frac{38}{46} = \frac{q}{414} \Rightarrow q = \frac{38 \times 414}{46} = 342$

14. (a) $a^2 + b^2 + c^2 + 216 - 12a - 12b + 24c = (a-6)^2 + (b-6)^2 + (c+12)^2$
So, $a - 6 = 0$, $b - 6 = 0$, $c + 12 = 0$
$a = 6$ $b = 6$ $c = -12$

$\sqrt{ab - bc + ca} \Rightarrow \sqrt{36 - (-72) + (-72)}$

$\sqrt{36 + 72 - 72} \Rightarrow \sqrt{36} = 6$

15. (c)



Given: KI = IT, EK = ET
EI is common side
So, we can say that
By SSS rule both are congruent
$2\theta + 150° = 360°$
$2\theta = 210$
$\theta = 105°$
So, $\angle TEI = 105°$

16. (a)

Data:	3	2	6th	7th	8th
Avg:	50	52	x	$x+6$	$x+8$
			44		

Deviation $\Rightarrow$ 50 – 44
$= 6 \times 3 = +18$
Deviation $\Rightarrow$ 52 – 44
$= 8 \times 2 = +16$
18 + 16 = 34
then, $x + x + 6 + x + 8 = 44 \times 3 - 34$
$3x + 14 = 98 \Rightarrow 3x = 84$
$x = 28$
So, eighth number = 28 + 8 = 36

Alternate Method:-

Number →	8	3	2
Average →	44	50	52
	352	150	104

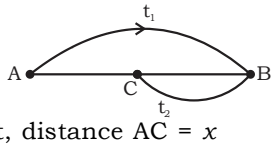
Let,
6th no. = x
7th no. = $x + 6 \Rightarrow$ 8th no. = $x + 8$
$x + x + 6 + x + 8 = 352 - 254$
$3x + 14 = 98 \Rightarrow x = 28$
So, 8th no. = 28 + 8 = 36

17. (d) ATQ,

	Udit	:	Aman
Speed	4	:	5

Udit speed = $\frac{480}{50} = 9{\cdot}6$ m/sec
4 unit = 9·6 m/sec
5 unit = $\frac{9{\cdot}6}{4} \times 5 = 12$ m/sec (Aman speed)
Relative speed = 12 – 9·6 = 2·4 m/sec
then, time = $\frac{612}{2{\cdot}4} = 4$ minute 15 sec

18. (d)



Let, distance AC = x
CB = x
then, AB = $2x$
So, $t_1 + t_2 = 20$

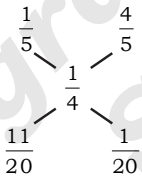
$\frac{2x}{15} + \frac{x}{5} = 20 \Rightarrow \frac{2x+3x}{15} = 20 \Rightarrow \frac{5x}{15} = 20$

$x = \frac{20 \times 15}{5} = 60$, $2x = 60 \times 2 = 120$ km

19. (c) When given one equation and three variables. We put two variables value by ourselves or we put any one variable is 0.
Let b = 0, a = 1

$p = \sqrt[3]{(a + \sqrt{a^2})} + \sqrt[3]{(a - \sqrt{a^2})} \Rightarrow p = \sqrt[3]{2} + \sqrt[3]{1-1} \Rightarrow p = \sqrt[3]{2}$
then, $p^3 = 2$
So, we can say that $p^3 + 3bp = 2a$

20. (d) By aligation method:



then, Ratio 11 : 1

21. (b)

C.P	S.P
100	90

$100 \times \frac{70}{100} = 70$ $70 \times \frac{110}{100} = 77$
So, 90 unit – 77 unit = 26
13 unit = 26
100 unit = $\frac{26}{13} \times 100 =$ Rs.200

22. (c) $156 = 4 \times 3 \times 13$
(So, we check multiple of 4, 3, 13)
312, 936, 1402, 7176 are divide by 156.
then, 4

23. (b) L.C.M = (7, 11, 77) = 77

$\left(\frac{15}{7}, \frac{5}{11}, \frac{21}{77}\right) \times 77 \Rightarrow 165, 35, 21$

Descending order $\Rightarrow \frac{15}{7}, \frac{5}{11}, \frac{21}{77}$

24. (a) $\sec^4\theta - \tan^4\theta$
$(\sec^2\theta)^2 - (\tan^2\theta)^2$
$a^2 - b^2 = (a + b)(a - b)$
then, $(\sec^2\theta + \tan^2\theta)(\sec^2\theta - \tan^2\theta)$
$\frac{9}{5} \times 1 \Rightarrow$ So, $\frac{9}{5}$

25. (d) $\frac{17}{\sqrt{3}+2} + \frac{16}{\sqrt{3}-2} + \frac{13}{\sqrt{3}+4}$

$\frac{17(\sqrt{3}-2)}{1} + \frac{16(\sqrt{3}+2)}{-1} + \frac{13(4-\sqrt{3})}{13}$

$\frac{-(17\sqrt{3} - 34 + 16\sqrt{3} + 32 + 4 - \sqrt{3})}{1}$

$-17\sqrt{3} + 34 - 16\sqrt{3} - 32 + 4 - \sqrt{3}$

$-34\sqrt{3} + 6 \Rightarrow 6 - 34\sqrt{3}$

1. Which one among the following is the smallest?
कै ं क्षकं दं लॅह्यएँहगे ा अएॅं एमिचें एतएॅहु ` ह्रं (ा
SSC CPO 09/12/2019 (Shift-01)
(a) $\sqrt{101} - \sqrt{99}$
(b) $\sqrt{201} - \sqrt{199}$
(c) $\sqrt{301} - \sqrt{299}$
(d) $\sqrt{401} - \sqrt{399}$

2. Find the value of $a^2 + b^2 + c^2 - 2ab + 2ac - 2bc$, if $a = x + y$, $b = x - y$ and $c = 2x - 1$.
$a^2 + b^2 + c^2 - 2ab + 2ac - 2bc$, गे ॅ लें ॅ सेदं ग रक्षास चक्षं $a = x + y$, $b = x - y$ पें ा $c = 2x - 1$ (ह्म
SSC Phase X 04/08/2022 (Shift- 03)
(a) $(x - y - 1)^2$
(b) $(2x + 2y - 1)^2$
(c) 0
(d) $(2x - 2y - 1)^2$

3. Side of an equilateral triangle is 24 cm. What will be the radius of incircle of this equilateral triangle?
स्गॅ एलत्ते (जक्षेकृक्षें ग रं कृक्षें ॅ क्यं एहह्नं? (ह्नं उएॅ एलत्ते (ज केकृक्षें गॅहप म्र्फ वड़ें ॅ ग रं के चें 8चें (ह्रें
SSC CGL 02/12/2022 (Shift-03)
(a) 6 cm
(b) 12 cm
(c) 8 cm
(d) $4\sqrt{3}$ cm

4. If $\sin\theta - \cos\theta = \frac{4}{5}$, then find the value of $\sin\theta + \cos\theta$.
चक्षं $\sin\theta - \cos\theta = \frac{4}{5}$ (ऽ देॅह $\sin\theta + \cos\theta$ गे लें ॅ सेदं ग रक्षास्ज्ञ
SSC CGL 08/12/2022 (Shift-02)
(a) $\frac{5}{\sqrt{34}}$
(b) $\frac{5}{\sqrt{24}}$
(c) $\frac{\sqrt{34}}{5}$
(d) $\frac{\sqrt{24}}{5}$

5. ABC is a right-angled triangle, right angled at B such that AB = 6 cm and BC = 8 cm. What is the perimeter of the square inscribed in the triangle ABC with maximum area?
ABC स्गॅ एलगे हें ॅ केकृक्षें (ऽ क्षएगें ॅ गे हें ॅ B उए 5गे ें एलगे हें ॅ (ा क्षें AB = % एहह्रं पें ें BC = 4 एहह्रं (ह्नं केकृक्षें ABC लॅह्यप क्षक्ष दं प कृ ग दलें लेहेइ ट वे टॅहव)क्राें ॅ इकेलेइं 8चें (ा
CDS 2024 (I)
(a) $\frac{24}{7}$ cm
(b) $\frac{96}{7}$ cm
(c) 24 cm
(d) 32 cm

6. After working for 8 days, Rakhi finds that only 10% of the work is completed. She employs Poonam who is 20% more efficient than Rakhi. How many more days will they together take to complete the remaining work?
4 कं ॅ ह्नदगं ग लं गीं ॅ हगॅहते ऽ ा ा रं गें हइदें छटदें (ा क्षें प कृक्षें दगं ग ह्नहटं प्रट7 ग लं ह्नी ॅ (पें ॅ (ह्नं व(इन्ल गेहगे लं ह्नीं ा ा दरं (ऽ नेॅही ा रं एॅहक्ष7 प केक्षें ॅ वक्षेट (ह्नरेखेहें ग लं ग ेहह्नी गीं ॅ हल्के.(ह्नक्ष दं हकं ॅ पें ा ट)ह्नेह
SSC GD 20/02/2024 (Shift-01)
(a) $\frac{360}{11}$ days
(b) $\frac{340}{7}$ days
(c) $\frac{340}{11}$ days
(d) $\frac{360}{7}$ days

7. What is the remainder when 35^{29} is divided by 10?
35^{29} गे ॅ हप्रदं ॅ एॅहक्षे) ॅ हॅह्नीं ॅ खेहेइ ट क्षदं ॅ (हें
SSC GD 20/02/2024 (Shift-04)
(a) 6
(b) 4
(c) 5
(d) 0

8. A motorboat can row 12 km/hr in still water. If the speed of the current is 2 km/hr, it takes 1.5 hours more in covering same distance upstream than it does downstream for covering the same distance. The one-side distance is:
स्गॅ लेह्नीं ॅ वॅ क्षबीं नटॅ लॅह्यप्रवं क्ष लरु3भेबें ॅ ग रं छे ट एॅहछटॅ एग दरं (ह्नं चक्षं ़ ा ॅ ग रं छे ट वॅ क्ष लरु3भेबे (ऽ देॅहं ॅ वॅ ़ ा ॅ गॅह5क्षग ट स्गॅ ा रं दचं गी ॅ हल्के ़ ा ॅ गॅहप ह्मट एलें ॅ ा रं दचं गी ॅ हएॅहप्रं ॅ भेह्नेहप कृ गॅ एलचें टहरं (ह्नंस्गॅ दीइ1गरं ा रं क्ष दं रं (ा
SSC MTS 08/09/2023 (Shift- 03
(a) 50 km
(b) 53 km
(c) 52.5 km
(d) 51.5 km

9. Find the value of the following.
कै ं क्षकं दं गे ॅ लें ॅ सेदं ग रक्षास्ज्ञ

$$\frac{\sin^2\theta(1+\tan\theta)}{(\sec^2\theta-1)(1+\sin 2\theta)}$$

(a) $\frac{1}{(1+\tan\theta)}$
(b) $\frac{1}{(1+\cot\theta)}$
(c) $\operatorname{cosec}\theta$
(d) $\sec\theta$

10. The perimeter of rectangular park is 552 cm. What could be the maximum area of the park.

स्गॅ पे च्ह्वे ग ी ं ड़े गं क्रां ॅ ड़्केलेड़ॅ 552 cm (हृ ड़े ग क्र
गॅ प कृग दलॅ लेहृड़ ट ॅ काद ं ॅ (ॅहएग दें (ा

(a) 9000 (b) 14000
(c) 18769 (d) 19044

11. If $\left(x^3+\frac{1}{x^3}-k\right)^2+\left(x+\frac{1}{x}-p\right)^2=0$, where k and p are real numbers and $x \neq 0$, then $\frac{k}{p}$ is equal to:

चक $\left(x^3+\frac{1}{x^3}-k\right)^2+\left(x+\frac{1}{x}-p\right)^2=0$ (ॅ0 का एलॅहk

पे ी ॅ p वे श्दकाग ॅ एमिचेर्स (मपे ी ॅ $x \neq 0$ (ॅ0 दें ह $\frac{k}{p}$ ॅ ग
लें ॅ 8चें (हे

SSC CPO 13/12/2019 (Shift-01)

(a) $p^2 + 1$ (b) $p^2 + 3$
(c) $p^2 - 1$ (d) $p^2 - 3$

12. A, B, C, D can complete a work in 3, 6, 9, 12 hours respectively. Further, only one person can work at a time in each hour and nobody can work for two consecutive hours. It is not necessary to engage all. What is the minimum number of hours that they will take to finish the work?

A, B, C, D स्गॅ ग चंक्रा ह लखें ः 0 %0 क0 प्रकें भ्रॅहलहर्ी
गी ॅ एग दंह(हृ उएगॅहप ट वे 0 5 डकृ ॅ भ्रॅहलृ स्गॅ एलचें लह
गहृट ॅ स्गॅ (र, चक्रे ी ग लॅ गी ॅ एग दें (ा पे ी ॅ ग हृकेर
ट)दें ॅ ॅहभ्रॅहदग ॅ ग लॅ (स्गी ॅ एग दें (हृ एक्रृ ग ह
खे का ट ॅ गी ॅ न6ीरें (स्(हृग लॅ ष ड़ा गी ॅ हलॅ (हृ चंदल
का दंॅ हेभ्रॅहट)हृह

CDS 2024 (I)

(a) $\frac{36}{25}$ (b) $\frac{12}{5}$
(c) 4 (d) 2

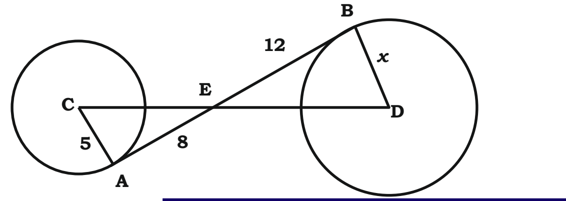
13. When x is subtracted from 28, 32, 10, and 11, the numbers so obtained are in proportion. Find the ratio of $x^2 : (x + 2)$.

नतें क40 : क0 प्रदॅ पे ी ॅ प्रॅ लॅहएॅह x ॅ भ्रे ॅ चें ने दें (ॅ0 दे ह
उएॅ 5ग ी ॅ 5 खें एमिचेर्धएलें झेदें (हर (हृ $x^2 : (x + 2)$
गॅ प ॅ झेदें से दें ग खाास्ज़

(a) 8 : 3 (b) 3 : 5
(c) 2 : 5 (d) 7 : 5

14. AB is a common tangent to both the circles in the given figure. Find the distance (correct to two decimal places) between the centres of the two circles.

र) उॅक्रा 9 क लॅह AB ॅ हेॅहवड़ॅ हृग र ठकृचकंतर्ॅ श्इखेक्र
ाहॅ ॅ (हृ उ ॅ ॅहवड़ॅ हृग हग हृबेॅ हृगॅ हतरखॅ ग र ेॅर से द
गीॅहृ खेलट वें गॅहते ॅ ॅहश्बे ॅ ॅहृग र)2 ॅ ॅ गीहृ



SSC CPO 10/11/2022 (Shift-01)

(a) 18.98 units (b) 23.58 units
(c) 26.58 units (d) 21.62 units

15. Two trains A and B leave Delhi for Hyderabad at 7 : 00 a.m and 7 : 50 a.m. on the same day and travel at 80 km/h and 100 km/h respectively. After how many kilometers from Delhi will the two trains be together?

ॅहथ्हृहA पे ी B स्गॅ (र क ॅ लॅहएलॅ(-म्दॅ तनॅहपे ी
एलॅ(-म्दॅ तनॅहर्क ट र एॅह(ा ी ते ॅ गॅहक्र र ीवे ॅ ॅ (हर
(मपे ी, लखें 4दॅ का लउ भ्रॅहपे ी प्रदॅ का लउ भ्रॅहग र
)कॅ एॅहचे ी ॅ गी दर (हृ र्क ट र एॅह का दॅ हका ट हृर्थी ते
ॅ हे हृथ्हृहस्गॅ ऐ बें (हृर

CDS 2024 (I)

(a) $\frac{200}{3}$ km (b) 100 km
(c) $\frac{400}{3}$ km (d) $\frac{1000}{3}$ km

16. In an election, 15% of the voters on the voters list did not cast their votes and 100 voters cast their ballot paper blank. There were only two candidates Ram and Shyam. The winner, Ram, was supported by 69% of all the voters in the list and he got 630 votes more than Shyam. Find the number of voters on the list.

स्गॅ छजेवॅ लॅहलद ॅ दें एछर गॅहप्र 7 लद ॅ दे पे हृ ॅहपड़ॅ
लदॅ (स्पे ट ॅ पे ी प्रदॅ लद ॅ दे पे हृ ॅहपड़ॅ ॅ लदड़)
ष ट र ु हृठकचेड़ी लॅ पे ी ख्वेलॅ ॅह(र 5 ड्ेखें बेह
का नहें ी लॅ ग ॅहएछर गॅहएकृर लद ॅ दे पे हृलॅहएॅह%क7 ग
एलेंक्र 5 खें (खे ॅ पे ी ठएॅहख्वेलॅ एॅह%:दॅ लदॅ प कृग
का ट हृ एछर लॅहलद ॅ दे पे हृग र एमिचें से दें ग खाास्ज़

SSC Phase-XI 30/06/2023 (Shift-03)

(a) 1200 (b) 1000
(c) 1100 (d) 1300

17. The number of marbles in jars A, B, and C are in the ratio of 2 : 6 : 5 respectively. From jar A, 50 marbles are taken and put into jar C and thus the ratio becomes 4 : 18 : 17 respectively. The sum of initial number of marbles in jar B and jar C is:

ने ी A, B पे ी C लॅहग छे हृग र एमिचें, लखें 2 : 6 : 5
गॅहप ॅ झेदें लॅह(हृ ने ी A एॅहप्दॅ ग छेहक्र ने दॅह(मपे ी
ने ी C लॅहणे ट ॅ कर ॅ ने दॅह(मपे ी उएॅ इबे ी प ॅ झेद
, लखें 4 : 18 : 17 (हने दें (हृ ने ी B पे ी ने ी C
लॅहग छे हृग र पे ीक्रेग ॅ एमिचें ग ॅ चेहृइ ट का द ॅ (ा

(a) 785 (b) 850
(c) 825 (d) 795

18. **When an integer k is divided by 3, the remainder is 1 and when k + 1 is divided by 5 then it gives remainder 0. Which of the following would be possible value of k?**

नतें स्गॅ इरें सॅ k गें हः एँहक्केकदं कचें नदें (ऍ देह खेहइ ट्र प्रॅ इब्लें (हें (ापें ॉ k + 1 गें हप्ॅ एँहक्केकद गॉ ॅहर्इॉ खेहइ ट्र ॅ इब्लें (हें (ह्मकै कर्कदं लॅहएह गें ाऐं कर्ॉ इॅ k गें एक्केकदं लें ॅ (हें

(a) 62 (b) 63
(c) 64 (d) 65

19. **A plank of wood 4.25 m long and 3.4 m wide is to be cut into square pieces of equal size. How many square pieces of largest size can be cut from the plank, if no wastage is allowed ?**

यक्रैॅ लर्थी टक्षेहपें ॉ :य़ें लर्थी छे र्गैहटगण्ठें गॅहस्ग दर्दिहगें हएलें ॅप गें ॉ गॅहछे गें हें थ्रवाएेंहल्एहगें थें नें ॅ (ह्मचकॅ गें हॅक्र इ चचें ॅ (हदें हदर्दिहएँहएत एँहत एॅह्रपें गें ॉ गॅहकदं हव) क्रें ॉ थ्रवाएॅह्रगें थेंहनें ॅ एगदंह(म

CDS 2024 (I)

(a) 45 (b) 90
(c) 400 (d) 20

20. **A coconut tree swings with the wind in such a manner that the angle covered by its trunk is 18°. If the topmost portion of the tree covers a distance of 44 metres, find the length of the tree.**

स्गॅ ेकेचटॅ गें इहॅठ(वें गॅहएबें उएॅ दी(ॅ ऊटदें (ा कर्ॅ ठएगॅहदॅहरेें ॉ त ेचें)चें गें हें 18° (हें (ह्म चकॅ इहॅठगें एतएँहज्इीरें कें)44 लर्थी गरें ेरें दच गीदें (ऍ देहइहॅठगरें टसे उक्रसे दं गरक्स्ज़

SSC CGL 12/12/2022 (Shift-02)

(a) 120 metres (b) 210 metres
(c) 140 metres (d) 70 metres

21. **The external diameter of an iron pipe is 20 cm and its length is 12 cm. If the thickness of the pipe is 1 cm, find the surface area of the pipe (correct to two places of decimal).**

$\left(\text{take}\ \pi = \frac{22}{7}\right)$

टहॅहगॅहइे उइॅ गें ते (ारें चेएॅ कॅ एहेलरं (ापें ॉ उएगर टसे उक्रवकें एहेलरं (ह्मचकॅ इ उइॅ गरें लेहे उक्रॅ एहेलरं (ऍ देहइ उइॅ गें इरूरचें लेहइ टॅ सेदं गॉहनें ह खेलटव गॅहेहश्वे ॅ दगॅ ए(रें (हें $\left(\pi = \frac{22}{7}\right)$ टहॅ

SSC CGL 06/12/2022 (Shift-02)

(a) 1,662.67 cm^2 (b) 1,552.57 cm^2
(c) 1,442.48 cm^2 (d) 1,772.76 cm^2

22. **A and B can complete a work alone in 20 days and 60 days respectively. They began the work together but A left the work after some days and B completed the remaining work in 12 days. After how many days from the beginning, A left the work?**

A पें ॉ B पगहॅहस्गॅ गे लॅ गें ह लहेें कॅ कॅ पें ी %ॅ कॅ लॅहइी गॉ एगदंह(ह्म ०.(ह्महस्गॅ ऐबें गे ल खेलें कचें टह्मॅ A ॅहग्जें कॅ ॅह्मगॅहते ॅ गे लॅ ्हठ कचें पें ॉ B ॅहखेहें गे लॅ प्रें कॅ ॅहलेहइी कचेंज़्खेंजपे द एँहकदं हकॅ ॅह्मगॅहते ॅ A ॅहगे लॅ ्हठकचें

SSC GD 20/02/2024 (Shift-03)

(a) 12 days (b) 9 days
(c) 10 days (d) 15 days

23. **Anita travelled a distance for 11 minutes at the speed of 35 km/h in an autorickshaw. She travelled for 11 minutes in a taxi at 55 km/h and finally she travelled for 11 minutes by bus at 42 km/h to reach home. Find her average speed for the whole journey.**

पइॅहर्भी इ(ह्मॅ हगॅहकरें पकदें ॅहपे थ्रेक्के8खें एँहःप कल्उ3भ्रें गरें छे ट एँहप्रॅ कं ॉ थें चें ॉ गह्मॅ ०एॅ ह्थ8एर एँहप्ॅ कल्उ3भ्रें गरें छे ट एँहप्रॅ कं ॉ थें चें ॉ गरें पें ी पबॅ लॅहइएॅ हतएॅ एँहयकॅ कल्उ3भ्रें गरें छे ट एँहप्र कं ॉ थें चें ॉ गरें पें ी भीॅ इ(ह्मॅ)उक्रइीरें चें ॉ गॅहकरस ठएगरें पे एदं छे ट सेदं गरक्स्ज़

SSC Phase XI 30/06/2023 (Shift-02)

(a) 34 km/h (b) 54 km/h
(c) 44 km/h (d) 64 km/h

24. **Find the number of diagonals of a convex polygon of 10 sides?**

प्रॅ केवे पें ह्रवें टहॅहस्गॅ पवलॅर्ी त(केवॅ गॅहकग 2ॅ हगर एमिचें सेदं गरक्स्ज़

(a) 40 (b) 30
(c) 35 (d) 36

25. **The ratio of the length, width and height of a closed cuboid is given as 6 : 3 : 2. The total surface area of this cuboid is given as 1800 cm^2. Find the volume (in cm^3) of this cuboid.**

स्गॅ तमें भें कें गरें टसे उक्रछे गेॅक्ल ॉ ज्छे उक्ल ॅ पॅ ह्मद %ॅ ः ॅ वॅ कचें)चें (ह्मउएॅ भें ॅ कें गें एहरें क्र्रूरच लेहइ टॅ प्र4द्द एहरॅ कचें)चें (ह्मउएॅ भें ॅ कें गें पें चहं एहरॅ लहैहें सेदं गरक्स्ज़

SSC CGL TIER II 26/10/2023

(a) 4650 (b) 4500
(c) 4200 (d) 4800

ANSWER KEY

1.(d)	2.(b)	3.(d)	4.(c)	5.(b)	6.(a)	7.(c)	8.(c)	9.(a)	10.(d)
11.(d)	12.(c)	13.(a)	14.(b)	15.(d)	16.(b)	17.(c)	18.(c)	19.(d)	20.(c)
21.(b)	22.(a)	23.(c)	24.(c)	25.(b)					

SOLUTIONS

1. (d) Concept:-
Condition 1 → Difference are equal.
Condition 2 → Sign mark should be '–' in between.
Then the two no. whose sum is the greatest is the smallest number.
Example:

$$\Rightarrow \sqrt{101}-\sqrt{99}=\frac{(\sqrt{101}-\sqrt{99})(\sqrt{101}+\sqrt{99})}{\sqrt{101}+\sqrt{99}}=\frac{2}{\sqrt{101}+\sqrt{99}}$$

$$\Rightarrow \sqrt{401}-\sqrt{399}=\frac{(\sqrt{401}-\sqrt{399})(\sqrt{401}+\sqrt{399})}{\sqrt{401}+\sqrt{399}}=\frac{2}{\sqrt{401}+\sqrt{399}}$$

$\therefore \sqrt{401}-\sqrt{399}$ is smallest.

2. (b) $a^2 + b^2 + c^2 - 2ab + 2ac - 2bc = (a - b + c)^2$
So, $(a - b + c)^2 = (x + y - x + y + 2x - 1)^2 = (2y + 2x - 1)^2$

3. (d) Inradius of equilateral triangle :

$$r=\frac{a}{2\sqrt{3}}=\frac{24}{2\sqrt{3}}=\frac{12}{\sqrt{3}}=4\sqrt{3}\text{ cm}$$

4. (c) Given, $\sin\theta - \cos\theta = \frac{4}{5}$

On squaring,

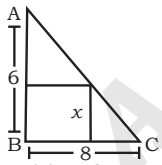
$$\left(\frac{4}{5}\right)^2 = 1 - 2\sin\theta.\cos\theta$$

$$\Rightarrow 2\sin\theta.\cos\theta=\frac{9}{25}$$

$$\because (\sin\theta+\cos\theta)^2 = 1+\frac{9}{25}=\frac{34}{25}$$

$$\therefore \sin\theta+\cos\theta=\frac{\sqrt{34}}{5}$$

5. (b)



Let, side of square = x cm

$$\because x=\frac{\text{Perpendicular}\times\text{Base}}{\text{Perpendicular}+\text{Base}}=\frac{6\times8}{6+8}=\frac{48}{14}$$

$$\therefore \text{Perimeter of square}=\frac{48}{14}\times4=\frac{96}{7}\text{ cm}$$

6. (a)

	Poonam	:	Rakhi
Effi. →	6	:	5

$$\because \frac{M_1D_1}{W_1}=\frac{M_2D_2}{W_2}$$

$$\Rightarrow \frac{5\times8}{1}=\frac{(5+6)x}{9}$$

$$\Rightarrow x=\frac{5\times8\times9}{11}=\frac{360}{11}\text{ days}$$

7. (c) $\frac{35^{29}}{10}$

So, $\frac{35^1\times35^{28}}{10}=\frac{7^1\times35^{28}}{2}$

= 1 × 1 = 1 × 5 = 5 (Remainder)

8. (c) If time difference is given then formula :

$$\frac{2Dy}{x^2-y^2}=\Delta t$$

$$\Rightarrow \frac{2\times D\times2}{10\times14}=\frac{3}{2}$$

$$\Rightarrow D=\frac{105}{2}=52{\cdot}5\text{ km.}$$

9. (a) $\frac{\sin^2\theta(1+\tan\theta)}{(\sec^2\theta-1)(1+\sin2\theta)}=\frac{\sin^2\theta(1+\tan\theta)}{\tan^2\theta\left(1+\frac{2\tan\theta}{1+\tan^2\theta}\right)}$

$$=\frac{\sin^2\theta(1+\tan\theta)}{\tan^2\theta\frac{1+\tan^2\theta+2\tan\theta}{1+\tan^2\theta}}$$

$$=\frac{\sin^2\theta(1+\tan\theta)\times\sec^2\theta}{\tan^2\theta(1+\tan\theta)^2}$$

$$=\frac{\sin^2\theta\times(1+\tan\theta)}{\cos^2\theta\times(1+\tan\theta)^2\times\tan^2\theta}=\frac{1}{1+\tan\theta}$$

10. (d) Given,
$2(l + b) = 552$

$$(l+b)=\frac{552}{2}=276$$

In every quadrilateral, for maximum area, the four sides are equal.
So, we find area of square
$\because (l + b) = 276$
$2a = 276$

$$a=\frac{276}{2}=138\text{ cm}$$

$\therefore$ Area of square = $a^2 = (138)^2 = 19044\text{ cm}^2$

11. (d) Given,

$$\left[x^3+\frac{1}{x^3}-k\right]^2+\left[x+\frac{1}{x}-p\right]^2=0$$

Let, $x = 1$

$\therefore (2 - k)^2 + (2 - p)^2 = 0$

So, $2 - k = 0 \quad 2 - p = 0$

$k = 2 \quad p = 2$

then $\frac{k}{p} = \frac{2}{2} = 1$

Option(d) $p^2 - 3 = (2)^2 - 3 = 4 - 3 = 1$ (Satisfy)

12. (c) For completing the work in minimum hours, we take only A and B.

$A \rightarrow 3$ — 2
6
$B \rightarrow 6$ — 1

A B A B = 4 hours
2 1 2 1

13. (a)
28 32 10 11

$x = \left|\frac{\text{Multiply first \& last no.} - \text{Multiply middle numbers}}{(\text{Sum of first and last no.}) - (\text{Sum of middle numbers})}\right|$

$x = \left|\frac{308 - 320}{39 - 42}\right| \Rightarrow x = \frac{12}{3} = 4$

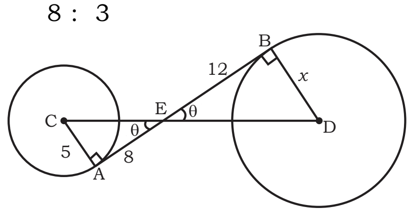
then, $x^2 : (x + 2)$

$(4)^2 : (4 + 2)$

$16 : 6$

$8 : 3$

14. (b)



$\angle CAE = \angle DBE = 90°$ (Angle of between radius and tangent = 90°)

$\angle CEA = \angle DEB = \theta$ (Vertically opposite)

So, Both triangles are similar.

$\because CE = \sqrt{(8)^2 + (5)^2}$

$\Rightarrow CE = \sqrt{64 + 25} \Rightarrow CE = \sqrt{89} \Rightarrow CE = 9.4$

Side AE : BE
8 : 12
1·5 times

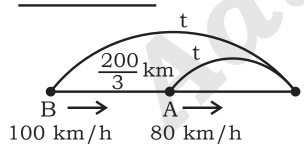
then, ED = 9.4 × 1.5 = 14.1

So, CD = 9.4 + 14.1 = 23.5 unit

15. (d) Distance covered by A in 50 minutes

$= \frac{80}{60} \times 50 = \frac{200}{3}$ km

At 7:50 a.m.



If time is constant then the ratio of speed and distance is same.

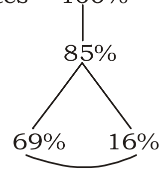
	B	A
Speed →	100	80
Distance →	5 :	4

Distance difference = 1 unit

$\because$ 1 unit $\rightarrow \frac{200}{3}$ km

$\therefore$ 5 unit $\rightarrow \frac{200}{3} \times 5 = \frac{1000}{3}$ km

16. (b) Total votes = 100%



$\Rightarrow 69\% - 16\% = 53\%$

$\because 53\% \rightarrow (630 - 100)$

$\therefore 100\% \rightarrow \frac{530}{53} \times 100 = 1000$

17. (c) A B C
(2 : 6 : 5)×3

($\because$ B remains same in both cases. Therefore, we make it equal in both ratios.)

4 : 18 : 17

6 : 18 : 15

then 2 unit → 50

1 unit → 25

then, 18 + 15 = 33 unit

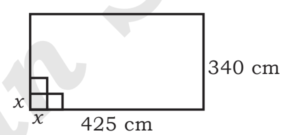
$\therefore$ 33 unit → 25 × 33 = 825

18. (c) By option (c) 64

When, $\frac{64}{3} \Rightarrow R = 1$

When, $64 + 1 = 65 \Rightarrow \frac{65}{5} \Rightarrow R = 0$

19. (d)



Let, side of square piece = x

$\therefore x$ = H.C.F. of (425, 340)

$\Rightarrow x = 85$ cm

$\therefore$ Number of pieces = $\frac{\text{Area of Rectangle}}{\text{Area of square piece}}$

$= \frac{425 \times 340}{85 \times 85} = 20$

20. (c) Length of arc = $\frac{2\pi r\theta}{360°}$

$\Rightarrow \frac{2\pi r \times 18°}{360°} = 44$

$\Rightarrow r = \frac{44 \times 360 \times 7}{2 \times 22 \times 18} = 140$ m

21. (b) R = 10 r = 9

Total surface area of hollow cylinder

$= 2\pi h(R + r) + 2\pi (R^2 - r^2)$

$= 2 \times \frac{22}{7} \times 12(19) + 2 \times \frac{22}{7}(19)$

$= 2 \times \frac{22}{7}(228 + 19) = \frac{44}{7} \times 247 = 1552{\cdot}57\ cm^2$

22. (a) $A \rightarrow 20$ — 3
60
$B \rightarrow 60$ — 1

Work completed by B in 12 days = 12 × 1 = 12 unit

Then, remaining work = 60 – 12 = 48 unit

$\therefore$ A left the work in = $\frac{48}{4} = 12$ days

23. (c) Total distance = $\left(\frac{35}{60}\times11+\frac{55}{60}\times11+\frac{42}{60}\times11\right)$

$= \frac{11}{60}(132)$ km

$\because$ Avg. speed = $\frac{\text{T.D.}}{\text{T.T.}} = \frac{\frac{11}{60}\times132}{33} \times 60 = 44$ km/h

24. (c) Number of diagonals = $\frac{n(n-3)}{2} = \frac{10\times7}{2} = 35$

25. (b) Given,
$2(lb + bh + hl) = 1800$
$\because l = 6x,\ b = 3x,\ h = 2x$
$\therefore 2(36x^2) = 1800$

$\Rightarrow x^2 = \frac{1800}{72} \Rightarrow x^2 = 25 \Rightarrow x = 5$

$\therefore$ Volume of cuboid = $6x \times 3x \times 2x = 36x^3$
$= 36 \times 5 \times 5 \times 5 = 4500\ cm^3$

1. The expression $555^{777} + 777^{555}$ is divisible by which of the following?

केदिकोंएगगगश्श्श र 388श्श क्षक्षक्षक्ष्क ष्ै ह्रसह्ल सहसहल्ल ेिदं (ह्र

1. 2   2. 3

3. 37

Select the correct answer using the code given below:

चव्र हकरं)सं नकुं नं य?दे हं न उनं हस(जयलेउं । स्र्ह्र

CDS 2024 (I)

(a) 1 and 2 only (b) 2 and 3 only

(c) 1 and 3 only (d) 1, 2 and 3

2. Vikram scored 32% marks in an exam and failed by 15 marks. If he scores 57% marks, then he gets 10 marks more than passing marks. What should be the passing marks for the exam?

क्षश्ट्ट चहस्नं ?उजे ह्र 80 मं ?2श्र क्षसं ह %ग मे ह्रसह चत्नजे (ह)दे ल् दकं प(ग30 मं ?2श्र न उ्थे (हं श्रेह्रयसंहयलेजे (ह्रहनहक्ष सं पादनं मे ह्रसह %क्रं मं केनं कट श्हे(ह्र ?उजे ह्रयलेजे (ह्रहनह वक्ष सं क्ष श्चंह मं (ह्रह। कस्त्र

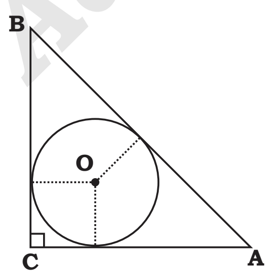
SSC GD 20/02/2024 (Shift-04)

(a) 57 (b) 49

(c) 52 (d) 47

3. A circle of radius 4 cm is inscribed in a right angle triangle ABC, right angled at C. If AC =12 cm, then the value of CB is:

स्नं सं नं हें वैं ं A B C, कसं ह्रने हें C सं नं हें (ह यसं ह्र4 cm कीदे पे टं स्नं पलें, जा दे थे (न्हदकं ल AC = 12 cm (हं थे ह CB नं चं (ह्र



SSC CGL 25/07/2023 (Shift-04)

(a) 8 cm (b) 12 cm

(c) 20 cm (d) 16 cm

4. The number of factors of 196 which are divisible by 4 is:

%न्खे नहक्ष श्चंह)मे चश्वे सं ठ सहक्ष ेिदं (ह्र

SSC CPO 09/11/2022 (Shift-02)

(a) 228 (b) 4

(c) 57 (d) 3

5. If $\frac{A}{L}+\frac{M}{B}=1$ and $\frac{B}{M}+\frac{N}{C}=1$, then the value of $\frac{L}{A}+\frac{C}{N}$ is :

दकं $\frac{A}{L}+\frac{M}{B}=1$ ` हं $\frac{B}{M}+\frac{N}{C}=1$ (हं थे ह $\frac{L}{A}+\frac{C}{N}$ नं चं . दें (हे ज्ञ

SSC CPO 03/10/2023 (Shift-02)

(a) 1 (b) $\frac{B}{M}$

(c) $\frac{M}{B}$ (d) 0

6. A train takes 7 seconds to pass a man standing on a platform and another train whose length is double that of the first train, and moving in the opposite direction, takes 10 seconds to pass him. The time taken (in seconds, to the nearest integer) by the trains to pass each other will be:

स्नं क्षश्र ट्ह्र?ऍब्रू ?उं ंहदिकोएनहे? उं न उच्हं ह्रअ सह मं नं सं दं टहज(हं क्षउजक्षश्र क सन जंटमे पू ?(टंजक्ष्र सह्र हे्यज(हं क्ष?उश्रं क ह्र। टथ्ज(ह दिकोएनहे? उं न उच्हं ह्र%क्रं सह मं नं सं दं टहज(ह क्ष्रोह उं स्नं क्षुहनहे? उं न उच्हं ह्रक्ष श्चं सं दं : सह स हं क्षन कथं ?क्रेमं थन क्ष ट) (हे ज्ञ

SSC Phase XI 30/06/2023 (Shift-01)

(a) 8 (b) 9

(c) 10 (d) 12

7. If $3\sin\theta + 5\cos\theta = 5$, then what is the value of $5\sin\theta - 3\cos\theta$?

दकं $3\sin\theta + 5\cos\theta = 5$ हं थे ह $5\sin\theta - 3\cos\theta$ नं चं . दें (ह्र

CDS 2024 (I)

(a) −3 (b) −2

(c) 5 (d) 8

8. In an election, 35% of the voters voted for candidate P where as 50% of the remaining voted for candidate Q. The remaining voters did not vote. If the difference between those who voted for candidate P and those who did not vote was 1000, the number of individuals eligible for casting a vote in that election was:

स्न ।क्षेप ह्य्न्गा0 ृ ् ृ ् ृ्ह्मचर्हयत जपे उ P न्हक्र ृ ृ्च्काद ऽ्भ्का ोह्र ह्मसहगक्र ृ ृ्ह्मर्हयत जपे उ Q न्हक्र ृ ृ्च कादे ्ोह्र ृ ृ्ह्मचर्ह ृ्च च(ज्ञाका दे ्दक यत जपे उ P न्ह ृ ह्मपे टेह्म ्ब ृ ृ्च च न उच्हपे टेह्मनहभ्ज न ऋउ %क्राक्ं ् ड् ृ ह यसं ।क्षेप ह्य ृ्च न उच्हनहक्र दे ह्र दिक ृदेह्म न ज सफ्दे का ृचंज् ज्ञ

SSC Phase X 01/08/2022 (Shift- 03)

(a) 40000 (b) 60000
(c) 75000 (d) 55000

9. x_1, x_2 and x_3 can do a work in 90, 45 and 67.5 days respectively. All three of them began the work together but x_2 left 13.5 days before the completion of the work. In how many days was the work completed?

x_1, x_2 ृ्ह x_3 स्न न्ह न्ह ोवन्क्र्ह उग ृ्ह ख्का कचेह्म ह्?कुं न उ सन थ्ह(ह्मृज्ञच्हस्न से कटनउ न ोरू कादे ड् टह्म च x_2 च्हने ?कुं (ह्मसंह% र्ण कचे ?(टह (जने धेहउकदे ्लने का ृच्हक चेह्म ह्?कुं (म्न ज्ञ

SSC GD 20/02/2024 (Shift-04)

(a) 24 days (b) 18 days
(c) 27 days (d) 25 days

10. If the work done by x men in $(x + 1)$ days is equal to the work done by $(x + 5)$ men in $(x - 2)$ days, then what is the value of x?

दक x ?प्डेह्म उ $:x + \%$ कचेह्म ह्मकादे)दे न दू $:x + $ गक्ष ?प्डेह्म उ $:x - 8$ कचेह्म ह्मकास)स न दू न्हभ्डे भ्उ (ह्र ृह्र x न च .दे (ह्र

CDS 2024 (I)

(a) 5 (b) 6
(c) 7 (d) 8

11. The digit in the unit's place of $[(651)^{98} + (251)^{49} - (216)^{24}]$ is:

$[(651)^{98} + (251)^{49} - (216)^{24}]$ न्हप्ने ट्ू रुं च ने मं (ह्र

(a) 1 (b) 6
(c) 5 (d) 4

12. Four shops named as A, B, C and D offer successive discounts on an article such as shop A offers 50% and 10%, shop B offers 45% and 15%, shop C offers 30% and 30%, and shop D offers 40% and 20% respectively. Which offer is best for the customer?

ोउ मे च्हA, B, C ृ्ह D स्न परस्र्ह्म?उं ृ ोवंप्स नेउ धकुं ह्मज(मक्न मे च A गक्र ृ्ह %क्र0ड् मे च B ठग0 ृ्ह %ग0ड् मे च C न्क्र ृ्ह न्क्र ृ मे च D ठक्र ृ्ह 8क्र धकुं ह्मज(ह्र)ु न न्हक्रस ने ह्मसे स्थे पं सभ्संह ज्ञे (ह्र

(a) By Shop A (b) By Shop B
(c) By Shop C (d) By Shop D

13. If $\frac{(\tan A - \sin A)^2}{1 - \cos A} = \tan^2 A$, if $A \le 90°$, then the value of $\cot^2 A - \cot^4 A$.

दक $\frac{(\tan A - \sin A)^2}{1 - \cos A} = \tan^2 A$ (ह्र दक $A \le 90°$ (ह्र ृह्र $\cot^2 A - \cot^4 A$ न च (ह्र

(a) 1 (b) 0
(c) −1 (d) −2

14. The percentage profit earned by selling an article for Rs.955 is equal to the percentage loss incurred by selling the same article for Rs.845. At what price should the article be sold to make a 6% profit?

स्न परस्र्हन्हगग 9?दहं ह्मभ्ह च्ह?उं कू ृ क्ा ो ृ ट ् यसंजपरस्र्हन्ह स्ठग 9?दहं ह्मभ्ह च्ह?उं (ह्मपे टह क्ा ो ृ (क्ा नहभ्डे भ्उ (ह्र खा ट क ृ न उच्हन ह क्रस परस्र्हन्हक सं कृदं ?उं भ्हे ृ चे ।कस्ज्ञ

SSC MTS 08/09/2023 (Shift- 03)

(a) Rs.954 (b) Rs.925
(c) Rs.955 (d) Rs.1,014

15. If interest is being compounded annually, then what sum will amount to Rs.9464 in 2 years at the rate of 30 percent per annum compound interest?

दक देद पे क्ेन रू? संहसबे हक ृ (ह्उ (ह्र ृह्न क्र ?क्रा ृ पे क्ेन ।ऽपक देद नज उ संहक ृचंजछचेक 8 पड्ं ह्मठक्ा रू?दहं (ह्र दहेज्ञ

SSC GD 20/02/2024 (Shift-03)

(a) Rs.5750 (b) Rs.5600
(c) Rs.5400 (d) Rs.6800

16. In vessels X and Y, the ratios of acid and water are 3 : 7 and 1 : 3, respectively. The contents of X and Y are mixed in the ratio of 1 : 2 to get a solution in which acid and water are in the ratio a : b. What is the value of $\frac{b + a}{b - a}$?

भ्ृच X ृ्ह Y ह्म टट ृ्ह ?चंजन च्ह ृ ोव न वअं ृ्ह %वन (ह्र X ृ्ह Y नजसं)ज्ञन ह% व 8 नह च्ह ृ ह्मकटदे दे ृ (ो ृक स्न ठेह ?2% कादे दे सनहकस ह्म टट ृ्ह ?चंजन च्ह ृ a : b (ह्र ृह्र $\frac{b + a}{b - a}$ न च .दे (P

SSC PHASE IX 2022

(a) $\frac{15}{7}$ (b) $\frac{11}{7}$

(c) $\frac{13}{7}$ (d) $\frac{12}{7}$

17. If the equation $k(21x^2 + 24) + rx + (6x^2 - 9) = 0$; $k(7x^2 + 8) + px + (2x^2 - 3) = 0$; have both roots common, then the value of $\frac{p}{r}$ is:

दकॅ $k(21x^2 + 24) + rx + (6x^2 - 9) = 0$; $k(7x^2 + 8) + px + (2x^2 - 3) = 0$; ` ह` हॅाेंहि कृ ये दकाळ

(हृ१ेह $\frac{p}{r}$ नॅ`` चॅ ऊे१ नजक्ष स्ल

SSC CPO 11/11/2022 (Shift-03)

(a) $\frac{1}{3}$ (b) $\frac{2}{5}$

(c) $\frac{4}{3}$ (d) $\frac{7}{5}$

18. A hemispherical bowl made of iron has inner diameter 84 cm. Find the cost of tin plating it on the inside at the rate of Rs.21 per 100 cm² (correct to two places of decimal).

$\left(\text{take } \pi = \frac{22}{7}\right)$

टे हॅहसॅहभ्‍चॅहस्न ` ञ्) ह जॅ नकेहॅहन ``` मकन दि स स्‍ठॅ सॅहजॅ(हॅ 8% 9?दॅहृ कॅ %क्कॅ सॅहजॅ नजॅ उॅसॅहं मउ नजॅ ` हॅ कच्चॅ। ग्ेळॅहनजॅटे )१ ऊे१ नजक्षॅ : ।` टप

नॅह`हरृ चॅहृ१न क्षल $\left(\pi = \frac{22}{7}\right)$

SSC CGL 02/12/2022 (Shift-01)

(a) Rs.2,328.48

(b) Rs.2,425.48

(c) Rs.2,425.60

(d) Rs.2,355.48

19. The value of $\sqrt{11+2\sqrt{18}}$ is closest to:

$\sqrt{11+2\sqrt{18}}$ नॅ`` चॅ कॅ सनॅहकॅ कॅ१ ` (हृ

SSC CPO 11/12/2019 (Shift-02)

(a) 4.8 (b) 4.4

(c) 3.8 (d) 4.1

20. In a 5 km race, Rajesh beats Thomas by 30 seconds and Thomas beats Prasad by 70 seconds. If the speed of Rajesh is 30 kmph, by what distance did Thomas beat Prasad?

5 km नजॅ ` हॅउ हृ उेह्रॅ चॅहृ ``बसॅ नॅहकॅ सहसॅ सह (उेदॅ ``ॅ हृ ``बसॅ चॅहृ?हॅ ` नॅहअॅ सहसॅ सॅह(उेदे दकॅ उेहॅ नजॅ।`ॅ 30 kmph (हृ१ेह ``बसॅ चॅहृ?हॅ नॅहकॅ १चॅ कृ्नसॅह(उेदे ज़

(a) 500 m (b) 600 m

(c) 750 m (d) 700 m

21. The length, breadth and height of a hall are 10 m, 20 m and 15m respectively. Find the cost of whitewashing the walls in the inside of the hall and ceiling at the rate of Rs. 10.20/m².

स्नॅ (बॅ नजॅटमे पृॅ।ॅहॅॅ `` हॅ मॅ प्ॅ६ ` ।वॅ%m, 8%m, `` हॅ%m (हॅ(बॅ नॅह मउॅ नजॅ जो उेॅह हॅ जाउॅजध१ नॅह Rs.%%8%m² नजॅ उॅसॅह?हृजन उच्हॅ ` । ॅ ऊे१ नजक्ष स्ल

SSC CGL 25/07/2023 (Shift-02)

(a) Rs.13,394 (b) Rs.11,220

(c) Rs.15,320 (d) Rs.16,542

22. Two persons take steps of 77 cm and 88 cm, respectively. If they start simultaneously, then what is the minimum distance (in cm) they should cover so that both of them can cover the distance in complete steps?

`हदिकॅ ६` ।वॅ अॅ सॅहजॅ ` हॅ स्त्तॅ सॅहजॅ नॅहन ` भ्जे्अॅह(हॅ दकॅ पॅह ` हॅहॅन `` भ्जे्अॅह(हॅ से `` हृ। टचे ।रूॅ नजॅ उेह(हृ१ेह यहॅ ` कृ १चॅ कृ: सॅहजॅ हृ १दॅ नजॅ। कॅ १ कॅ पॅह ` हॅ दॅ सॅह(` न ` :?कृन ``हॅ हृ कृ१ दॅ नउे सनहॅ (हृदे दकॅ

MTS 01/09/2023 (Shift- 01)

(a) 560 (b) 616

(c) 828 (d) 968

23. Kavita bought a table at 30% discount on its original price. She sold it with 48% increase on the price she bought it. What is the percentage difference between the new sale price and original price? If the original price is Rs 8,000, then how much extra money did Kavita get as profit?

नकॅ१ चॅहस्न ` हॅ यसनॅहॅ कृ ` कृदॅ ?उॅ रु्कॅ नजॅधकॅ ?उॅ उजॅ यसचॅहप्सॅह उजॅह)ॅ ` कृदॅ ?उॅ ०स्0 नजॅ पकॅ नॅहसे ` भ्हॅ कदे लॅ चॅ कॅ६ जॅ कृदॅ `` हॅ कॅ ` कृदॅ नॅहभ्जॅ ् कॅ १ ` मउॅ कॅ १चॅ (ज़ॅ से `` (जदक ` कृ ` कृदॅ स्ड़कॅ 9?दॅह(हृ१ेह नकॅ१ नॅहटॅ `` नहॅ रू?` हॅ कॅ १चॅ कॅलॅ ऐ ? चेकॅ ` ्5 (मृ ज़

MTS 06/09/2023 (Shift- 03)

(a) 5.6%; Rs.280

(b) 6%; Rs.360

(c) 4.5%; Rs.308

(d) 3.6%; Rs.288

24. If $a + b = 4$ and $ab = -21$, then what is the value of $a^3 + b^3$?

दकॅ $a + b = 4$ ˙ ` ॅं $ab = -21$ ॅ (ॅं ॐ ॅह $a^3 + b^3$ ने ʿ` चॅ का थ्चेॅ (ह्र

(a) 370 (b) 158
(c) 185 (d) 316

25. A motorboat travelling at some speed can cover 28 km upstream and 40 km downstream in 11 hours. At the same speed it can travel 30 km downstream and 16 km upstream in 7 hours, then the speed of the stream is:

स्नॅ ʿ` ह्नउॅ चेपॅ कासजॅ।` टॅ सॅहदे प्रेॅ नउ्थॅह(रॅ ञे उेॅ नह ˛ क्नन कॅ 8त्त काॅ जॅं ` हॅ ञे उेॅ नॅहं चम कॅ ०क्रॅ काॅ जनज ॅ कॅन%% ठेबॅर्ह ॅह्मथ्दॅ नउ्थॅज( हॅ यसजॅ।` टॅ सॅहप(ॅ ञे उेॅ नह ˙ चम कॅ ॰क्रॅ काॅ जॅं ` हॅ ञे उेॅ नॅह क्नन कॅ %खॅ काॅ जनज दे प्रेॅ अॅठेबॅर्ह ॅह्मथ्दॅ नउ्थॅज( हॅ ञे उेॅ नजॅ।` टॅ . देॅ (ह्र

SSC MTS 13/09/2023 (Shift- 03)

(a) 2 km/h
(b) 1 km/h
(c) 3 km/h
(d) 4 km/h

ANSWER KEY

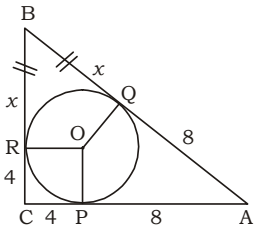
1.(d)	2.(d)	3.(d)	4.(d)	5.(a)	6.(b)	7.(a)	8.(a)	9.(c)	10.(a)
11.(b)	12.(a)	13.(b)	14.(a)	15.(b)	16.(a)	17.(a)	18.(a)	19.(b)	20.(a)
21.(b)	22.(b)	23.(d)	24.(d)	25.(c)					

SOLUTIONS

1. (d) $555^{777} + 777^{555}$
Point (1) → Odd + odd = Even : that means divisible by 2.
Point (2) → When any digit repeats three times. It means this number is divisible by 3, 37.
So, we can say that this expression is divisible by 2, 3, 37.

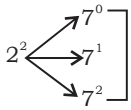
2. (d) Passing marks = 32% + 15 = 57% – 10
⇒ 25% = 25
⇒ 1% = 1
Then passing marks = 32% + 15 = 32 + 15 = 47

3. (d)



Let,
$(8 + x)^2 = 12^2 + (4 + x)^2$
$\Rightarrow 64 + x^2 + 16x = 144 + 16 + x^2 + 8x$
$\Rightarrow 8x = 160 - 64$
$\Rightarrow 8x = 96$
$\Rightarrow x = 12$ cm
$\therefore$ BC = 12 + 4 = 16 cm

4. (d) $196 = 2^2 \times 7^2$
Factors which are divisible by 4.



5. (a) Concept: If $a + \frac{1}{b} = 1$, $b + \frac{1}{c} = 1$

then, $c + \frac{1}{a} = 1$ $\quad abc = -1$

Let: $\frac{A}{L} = x$, $\frac{B}{M} = y$, $\frac{C}{N} = z$

then, $x + \frac{1}{y} = 1$

$y + \frac{1}{z} = 1$

So, $\frac{L}{A} + \frac{C}{N} = \frac{1}{x} + z = 1$

6. (b) Let length of train = x m

Speed of Ist train = $\frac{x}{7}$ m/s

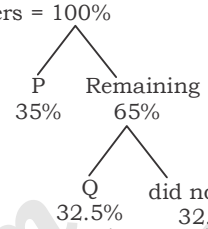
Speed of IInd train = $\frac{2x}{10} = \frac{x}{5}$ m/s

Time taken by both trains to pass each other

$= \frac{x + 2x}{\left(\frac{x}{7} + \frac{x}{5}\right)} = \frac{3x}{12x} \times 35 = 9$ sec (approx.)

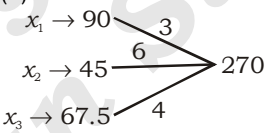
7. (a) Given,
$3\sin\theta + 5\cos\theta = 5$
Let, $5\sin\theta - 3\cos\theta = x$
$\because a^2 + b^2 = x^2 + y^2$
$\Rightarrow (3)^2 + (5)^2 = x^2 + (5)^2$
$\Rightarrow 9 + 25 = x^2 + 25$
$\Rightarrow x^2 = 9 \Rightarrow x = \pm 3$

8. (a) Total voters = 100%



Difference between who voted for P and who did not
cast vote = 35% – 32.5% = 2.5%
$\because$ 2.5% → 1000
then, $100\% \rightarrow \frac{1000}{2.5} \times 100 = 40000$

9. (c)



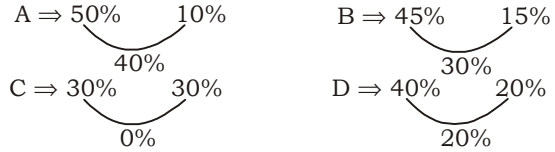
Total days = $\frac{270 + 13.5 \times x_2}{3 + 6 + 4} = \frac{270 + 81}{13}$

$= \frac{351}{13} = 27$ days

10. (a) ATQ,
$x(x + 1) = (x + 5)(x - 2)$
$\Rightarrow x^2 + x = x^2 - 2x + 5x - 10$
$\Rightarrow x = 3x - 10$
$\Rightarrow 2x = 10 \Rightarrow x = 5$

11. (b) $(651)^{98} + (251)^{49} - (216)^{24}$
$(1)^{98} + (1)^{49} - (6)^{24}$
1 + 1 – 6
2 – 6 = –4
As we know, unit digit is always positive so we can say tenth digit – unit digit.
So, 12 – 6 = 6

12. (a)



$\because$ Shop A has highest difference of discounts.
$\therefore$ It gives maximum discount to customer.

13. (b) Given,
$\frac{(\tan A - \sin A)^2}{1 - \cos A} = \tan^2 A$
$\Rightarrow \frac{(\tan A - \sin A)(\tan A - \sin A)}{1 - \cos A} = \tan^2 A$
$\Rightarrow \frac{\sin A(1 - \cos A)(\tan A - \sin A)}{\cos A(1 - \cos A)} = \tan^2 A$
$\Rightarrow \tan A\ (\tan A - \sin A) = \tan^2 A$

$\Rightarrow$ tanA – sinA = tanA
$\Rightarrow$ sinA = 0 $\Rightarrow$ A = 0°
$\therefore$ $\cot^2A - \cot^4A = \cot^2 0° - \cot^4 0° = \infty - \infty = 0$

14. (a) 845 — L% — C.P — P% — 955 (L% = P%)
When profit % and loss % are equal, then
C.P. = $\frac{845+955}{2} = \frac{1800}{2} = \text{Rs.}900$
$\therefore$ S.P. on 6% profit = $900 \times \frac{106}{100} = \text{Rs.}954$

15. (b) C.I. for 2 years at 30% per annum = 69%
Principal = 100%
Amount = 100 + 69 = 169%
$\because$ 169% $\rightarrow$ Rs.9464
$\therefore$ 100% $\Rightarrow \frac{9464}{169} \times 100 = \text{Rs.}5600$

16. (a)

	Acid		Water	
X →	(3	:	7)	×2×1
Y →	(1	:	3)	×5×2
	3	:	7	
	5	:	15	
	8	:	22	

a : b = 4 : 11
$\therefore \frac{b+a}{b-a} = \frac{15}{7}$

17. (a) $k(21x^2 + 24) + rx + (6x^2 - 9) = 0$;
$k(7x^2 + 8) + px + (2x^2 - 3) = 0$
Make both equations in $ax^2 + bx + c = 0$ form.
$x^2(21k + 6) + rx + (24k - 9) = 0$ .....(I)
$x^2(7k + 2) + px + (8k - 3) = 0$ .....(II)
I[st] equation is 3 times of II[nd] equation
$\therefore$ r = 3p
$\Rightarrow \frac{p}{r} = \frac{1}{3}$

18. (a) C.S.A. of hemisphere = $2\pi r^2$
$= 2 \times \frac{22}{7} \times 42 \times 42 = 11088 \text{ cm}^2$
Rate = Rs.21 per 100 cm^2
$\therefore$ Total price = 110.88 × 21 = Rs.2328.48

19. (b) $\sqrt{11+2\sqrt{18}} = \sqrt{(\sqrt{9})^2 + (\sqrt{2})^2 + 2\times\sqrt{9}\times\sqrt{2}}$
$= \sqrt{(\sqrt{9}+\sqrt{2})^2} = 3 + 1.4 = 4.4$

20. (a) Time taken by Rajesh = $\frac{5}{30} \times 60 \times 60 = 600$ sec

	Rajesh	Thomas	Prasad
	t	t + 30	t + 100
Time →	600	630	700

	T		P
Time →	630		700
	9	:	10
Distance/speed →	10	:	9

10 unit = 5000 metre
1 unit = 500 metre

21. (b) Cost = (C.S.A. of cuboid + Area of rectangle) × Rate
= [2(*l* + b) × h) + (*l* × b)] × Rate
= [(2 × 30 × 15) + (10 × 20)] × 10.20
= (900 + 200) × 10.20
= 1100 × 10.20 = Rs.11,220

22. (b) Minimum distance is L.C.M. of 77 cm, 88 cm.
= 11 × 7 × 8 = 616

23. (d) Original price = 100%
then, CP = 70%
New SP = 70% $\times \frac{148}{100} = 103{\cdot}6\%$
$\Rightarrow$ 103·6% – 100% = 3·6%
$\because$ 100% $\rightarrow$ Rs.8000
$\therefore$ 3.6% $\rightarrow \frac{8000}{100} \times 3.6 = \text{Rs.}288$

24. (d) Given,
a + b = 4 ab = –21
Let a = –3, b = 7
then, a + b = –3 + 7 = 4
a × b = –3 × 7 = – 21
So, $a^3 + b^3 = (-3)^3 + (7)^3$
$= -27 + 343 = 316$

25. (c) By value putting,
Let, Speed of boat in still water(x) = 7
Speed of stream(y) = 3
then, $\frac{28}{(x-y)} + \frac{40}{(x+y)} = 11$
$\Rightarrow \frac{28}{4} + \frac{40}{10} = 11$
$\Rightarrow$ 7 + 4 = 11 $\Rightarrow$ 11 = 11 (Satisfy)
$\because \frac{30}{(x+y)} + \frac{16}{(x-y)} = 7$
$\Rightarrow \frac{30}{10} + \frac{16}{4} = 7 \Rightarrow 3 + 4 = 7 \Rightarrow 7 = 7$ (satisfy)
So, we can say that speed of stream = 3 km/h

1. A man earns a profit of 30% by selling a phone for a certain price. If he sells that phone at 3 times of selling price, then what will be the profit percentage?

(a) 190%
(b) 290%
(c) 90%
(d) 100%

2. If (a + b) : (b + c) : (c + a) = 5 : 7 : 6, then what is the value of (a – b + c) : (a + b – c) ?

CDS 2024 (I)

(a) 1 : 1
(b) 2 : 3
(c) 3 : 1
(d) 4 : 3

3. What is the value of $2.\overline{3}+4.\overline{3}$?

SSC GD 21/02/2024 (Shift-01)

(a) $\frac{21}{4}$
(b) $\frac{20}{3}$
(c) $\frac{22}{7}$
(d) $\frac{18}{7}$

4. The value of $\sin^2\frac{2\pi}{3}+\cos^2\frac{5\pi}{6}-\tan^2\frac{3\pi}{4}$ is:

SSC Phase X 03/08/2022 (Shift- 02)

(a) $\frac{1}{2}$
(b) $\frac{1}{4}$
(c) 4
(d) 2

5. P, Q and R can finish a work in 5 days, 10 days, and 15 days, respectively, working alone. P and Q works on first day, P and R works on second day and P and Q works on third day and so on till the work is completed. In how many days the work will be completed?

SSC CGL TIER- II 07/03/2023

(a) $\frac{13}{2}$
(b) $\frac{9}{2}$
(c) $\frac{7}{2}$
(d) $\frac{5}{2}$

6. A person loses 15 percent on selling 50 shoes for Rs. 85. What should be the selling price of 50 shoes to earn a profit of 35 percent?

SSC GD 30/03/2024 (Shift-01)

(a) Rs.110
(b) Rs.115
(c) Rs.135
(d) Rs.120

7. A cube whose edge is 14 cm long has on each of its faces a circle of 7 cm radius painted yellow. What is the total area of unpainted surface? (Take $\pi = \frac{22}{7}$)

CDS 2024 (I)

(a) 126 square cm
(b) 189 square cm
(c) 252 square cm
(d) 315 square cm

8. Rahul earns an interest of Rs.2996 for the third year and Rs. 1400 for the second year on the same sum. Find the rate of interest per annum if it is lent at compound interest (compounding annually).

SSC GD 07/03/2024 (Shift-01)

(a) 113%
(b) 114%
(c) 110%
(d) 112%

9. The diameter of a solid iron ball is 10 cm and it is melted to form a solid cylinder of height $\frac{5}{3}$ cm. Find the diameter of cylinder.

स ˘ डेहू टे हूंह ˜ 8)हु ˙ ˋˋˋ ि उ ˘ 10 उह8 (ा जे ा ˘ 4उह

व्ह्रेट ˙ ˜ $\frac{5}{3}$ उह8. क्षेत्र्हटे ˘ स ˘ डेहू सहअसअे

ा लेँ (ह्सह अँ ˋˋ ि उ ˘ क्षे लें ˙ ड्डह्स्क

(a) 10 cm (b) 20 cm
(c) 30 cm (d) 40 cm

10. If the 8-digit number 28x9683y is divisible by 24, then which of the following is not a possible value of '2x – y'?

कि ˘ ल्जंमर्ष उसं ˘ 28x9683yˇ . छ उंहक्स र्ने ि (ह्लेह काक्का लें तहेहं ˙ ध्रउे '2x – y' ˋˋ उहे काले ते अ अह (ा

(a) 0 (b) 12
(c) 6 (d) 9

11. The angles of elevation of the top of a tower from two points A and B at a distance of x m and (x + 5) m from the base of the tower of height 6 m and in the same straight line with it are complementary. What is the value of x?

ब तर्क ˘ . क्षेत्र्हटे हरेर्य ˙ ˘ हजे ते ˘ उह x तर्क ˘ जे ा ˘ ए x + 2: ˘ तर्क ˘ 8 ˘ 8 ए ˘ जे ा ?उ ˘ हउे % स ˘ (8 उह 8 ˘ ह ˘ तहह%लें ˘ हक्षमवे हु A जे ा B उहरे र्य ˙ ˘ हरे क्षेकृ ह ? अ अ ˘ हे ए ˙ ˘ (ह् x ˋˋ तुर्थ दि ˘ (ा

CDS 2024 (I)

(a) 4 m (b) 5 m
(c) 6 m (d) 9 m

12. The income of an employees is 30% more than his expenditure. If his income decreases by 10% and his expenditure increases by 3%, then by what per cent does his saving decrease or increase?

स ˘ ˙ तक्षे ˙ 8 ˙ 8 जे ि ?उ ˙ है ि ि उहनपी ˘ जक ˙ ˘ (ह् कि ˘ ?उ ˙ 8 जे ि तहह5पी ˙ 8 ˙ त8 (हहे 8 (ा जे ा ?उ ˙ ह ˋ ि ि तहहनी ˙ 8 यक्ष ˙ (हहे (ह् लेंह ?उ ˙ 8 सचलें तहह कं लअहे1क्षे लें ˙ 8 ˙ त8 ि ˘ यक्ष ˙ (हहे 8 (ा

SSC Phase X 04/08/2022 (Shift- 02)

(a) $48\frac{1}{3}$% increase (b) $53\frac{1}{3}$% decrease
(c) $50\frac{1}{4}$% increase (d) $52\frac{1}{4}$% decrease

13. Three cubes of equal volume are joined end to end. Find the surface area of the resulting cuboid if the diagonal of the cube is 6√3 cm.

र्स र्स ˘ जे ि लअे ये टेहलअे क्षेत्र ˙ हक्षे हउेहक्षे हउरे ˙ ˋ जे एउ ˘ तहह ेहे - ा लें (ह् कि ˘ क्षेअं ˋˋ क्षं द्धेकृ6√3 cm (ह् लेहएक्षेद्धे त8 क्षेअेज़ ˘ ˋˋ एक्षर्ष खेहएग्ट ˘ क्षे लें ˙ ड्डह्स्क

SSC CGL 05/12/2022 (Shift-04)

(a) 509 cm² (b) 504 cm²
(c) 516 cm² (d) 512 cm²

14. If a + b + c = 6 and $a^2 + b^2 + c^2 = 38$, then what is the value of $a(b^2 + c^2) + b(c^2 + a^2) – c(a^2 + b^2) + 3abc$?

कि a + b + c = 6 जे ा $a^2 + b^2 + c^2 = 38$ (ह् लेहह $a(b^2 + c^2) + b(c^2 + a^2) – c(a^2 + b^2) + 3abc$ ˙ ˋˋ ते अ क्षे ल ˙ ड्डह्स्क

SSC CPO 11/12/2019 (Shift-01)

(a) 3 (b) –3
(c) 6 (d) –6

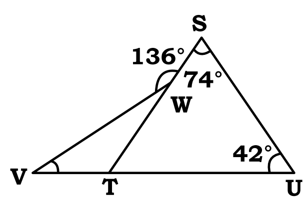
15. Two pipes A and B, can fill a tank with water in 36 hours and 12 hours respectively and a third pipe C, can empty it in 4 hours. If pipe A is opened at 12 PM, pipe B is opened at 2 PM, and pipe C is opened at 4 PM, the tank will be emptied at:

ˋ हए 4ए A जे ा B स ˘ रुंम 8 ˋ ˋ हए अ8 उंहम तरे 0 नब जे ा 5. ˘ क्षेहतहहे ˘ उ लेंह (मजे ा स ˘ लछ ˘ ˋ ए 4ए C ?उंहछ क्षेहतहहे ट 8 ˘ ˘ उ लें (ह् कि ˘ ए 4ए A जए ˚ अ 5. ˘ सा हरे हे ˙ ा लें (ह् ए 4अ B जए ˚ अ . ˘ सा हरे हे ा लें (ा जे ा ए 4ए C जए ˚ अ छ सा हरे हे ˙ ा लें (ह् लेंहरुंम 8 क लछ्हस हरे ट 8 (हा ˘ स)8

(a) 5 : 00 PM (b) 5 : 20 PM
(c) 5 : 40 PM (d) 6 : 00 PM

16. In the given figure, ∠TSU = 74°, ∠SUT = 42° and ∠VWS = 136°. What is the value of ∠TVW?

8)अंकृते ए क्षं तहह ∠TSU = 74°, ∠SUT = 42° जे ा ∠VWS = 136° (ह् ∠TVW ˙ ˋˋ ते अ क लअे (ा



(a) 10° (b) 20°
(c) 24° (d) 18°

17. Three partners P, Q and R invested a total of Rs 52,000 in a business. At the end of the year. P got Rs. 1430, Q got Rs. 1870 and R got Rs 2420 as the share of profit. How much amount did Q invest in the business?

ल्अ उ ठहे ˋ ह्P, Q जे ा R अहर ˋ यिउ ि तहह बे 2. ध्यप इएहिं ˋˋ क्षमहे कं ि क्षेउ ट ˙ हजसे तहहP ˋˋ ह5छ्पं इएहि क्ट हहQ ˋˋ ह5ल्छ्पं इएहिक्ट हजे ा R ˋˋ ह. छ पं इएहि ट ज़े ˘ हक्ष्उहे ह ए ˘ तहहक्ट हहQ अहे यिउ ि तहहं लअ8 ˋ कें क्षमहे ˘ 8

SSC MTS 13/06/2023 (SHIFT-03)

(a) Rs. 17000 (b) Rs. 20400
(c) Rs. 15300 (d) Rs. 18700

18. What is $\frac{3}{1^2 \times 2^2} + \frac{5}{2^2 \times 3^2} + \frac{7}{3^2 \times 4^2}$ +.... equal to?

$\frac{3}{1^2 \times 2^2} + \frac{5}{2^2 \times 3^2} + \frac{7}{3^2 \times 4^2}$ +...... ˘ कउ ˘हर्स र्स ˘ (r

CDS 2024 (I)

(a) 1 (b) 4
(c) 7 (d) 9

19. Consider the following statements:

काक्षक्ष का लॅ %ॲ्ाएॅ काचे˘˘ क्षकर0

I. In an acute triangle, the circumcentre is outside the triangle./र˘ ्ुिॲ ˘ हॅ केज़्म तॅहाएर्क ्हॅ केज़्मर्स ˘हसे(˘ (हॅ (म

II. In a right triangle, the circumcentre is the midpoint of the hypotenuse./र˘ उतं ˘ हॅ केज़्मॅ तॅहाएर्क ्हॅ ˘ ॅक्ृ˘ तर्क्षामंव्(हॅ (म

III. In an obtuse triangle, the circumcentre is inside the triangle./र˘ जक˘ ˘ ˘ हॅ केज़्मॅ तॅहाएर्क ्हॅ केज़्म˘ ˘हजर्म˘ (हॅ (म

Which of the above statements is/are correct?

?एॅ्ृिगतॅहुउॅहं ˘ भ्रुउ >उॅहं %ॲउ(8 (ƀ(म

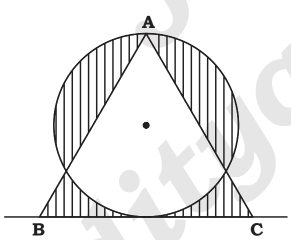
(a) Only I (b) Only II
(c) All I, II and III (d) Both II and III

Direction (20 - 21): Consider the following for the next items that follow:

का हुॅ0 ज)टॅहयल्बाॅ हॅ ˘हकर काक्षक्ष का लॅ एॅ काचे˘ ˘ ˘ह्म

Consider a circle of area 9π square unit and an equilateral triangle ABC as shown in the figure given below.

9π य)क्ृं ˘ ॅक्ृेहेएर्ग यटॅहर˘ यूखॅ जॅ˘ र˘ उतसे(व केज़्मॅ ABC˘ एॅ काचे˘˘ ˘ह।इे˘ क˘ अ्ॅहकर)र˘ कॉ˘ तह क9 ि˘)ि˘ (म



20. What is the length of the side of the triangle ABC ?

केज़्मॅ ABC˘ 8ज़्मे˘ 8टसे ॅक्ृि˘ (r

CDS 2024 (I)

(a) $2\sqrt{3}$ unit (b) $4\sqrt{3}$ unit
(c) $6\sqrt{3}$ unit (d) $8\sqrt{3}$ unit

21. What is the area of the shaded region?

जे ि कलॅ खेहॅ˘ ˘ खेहेएर्ग कलॅ (r

CDS 2024 (I)

(a) $6(\pi + \sqrt{3})$ square unit
(b) $3(\pi + 2\sqrt{3})$ square unit
(c) $1.5(3\pi + 8\sqrt{3})$ square unit
(d) None of these

22. While calculating the average marks of a class, the score increased by 0.5 when marks of one student is wrongly entered as 54 instead of 45. The number of students in the class is:

र˘ ˘ खे˘ ˘हजे घलॅ जमे ˘ह 8)हेॲ ˘ ल्हुउतिइॅ र कॉ˘ %8क्ृ ˘हजमे ˘ह ˘हे7कयरे छ्2˘ ˘हब्रॅ ॲ एॅ 2छ ।क्ृ ˘˘ ॲह्ए˘ खे˘ ˘हजे घलॅ जमे ्तॅहपश्रॅ 8 यक्ष˘ (ह ।लॅ8(म्रॅ खे˘ तॅहकॉ˘ केक्ॅह ˘8उर्स˘ कल8(r

SSC MTS 13/09/2023 (Shift- 02)

(a) 54 (b) 36
(c) 18 (d) 45

23. If 6tan A = 5, find the value of $\left(\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right)$

ि क˘ 6tan A = 5 (हॅ लेह $\left(\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right)$ ˘ ˘˘ तेॲ 8ल 8क्षरव

(a) $\frac{11}{5}$ (b) $\frac{13}{6}$
(c) $\frac{11}{6}$ (d) $\frac{13}{5}$

24. Radha, Pratima and Reena begin to run around a circular path and they complete their revolutions in 50 seconds, 75 seconds and 100 seconds, respectively. After how much time (in minutes) will they meet together at the starting point for the first time?

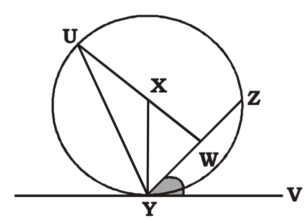
˘तेइ 1कतॅ जॅ˘ श्रॅ र˘ यूखॅ˘˘ एॅ् एॅ˘ ˘ह्ॲ रेव ˘˘ल8(मजॅ˘ यॅह्म तरे0 2पॅ उह्त्8 ध्2 उहर्स जॅ˘ 5पप उहर्स तॅहजएॲ चद˘˘ एॅ˘˘ ल8(मॅक लॅहउतिप्काओह्म तहॅ ˘हसे यॅह्(ट8र्स˘ 1˘ ˘ कामॅवर्˘ र˘ उ8 काटह्8

SSC MTS 11/09/2023 (Shift- 03)

(a) 4 (b) 5
(c) 6 (d) 3

25. In the given figure, X is the centre of the circle, XW ⊥ YZ and ∠ZYV = 32°. What is the value of ∠YUW?

8)ॅक्ृजे प कॉ तॅह कामॅवX यूखॅ˘ ˘ ˘ ह्(ालॅ% XW ⊥ YZ जॅ˘ ∠ZYV = 32° (म्र∠YUW ˘ ˘ तेॲ कलॅ (r



(a) 16° (b) 14°
(c) 12° (d) 18°

ANSWER KEY

1.(b)	2.(c)	3.(b)	4.(a)	5.(c)	6.(c)	7.(c)	8.(b)	9.(b)	10.(d)
11.(a)	12.(b)	13.(b)	14.(d)	15.(d)	16.(b)	17.(a)	18.(a)	19.(b)	20.(b)
21.(d)	22.(c)	23.(c)	24.(b)	25.(a)					

SOLUTIONS

1. (b) C.P = 100, SP = $100 \times \frac{130}{100} = 130$

Three times of S.P = 130 × 3 = 390
then, profit = 290

So, profit% = $\frac{290}{100} \times 100 = 290\%$

Alternate Method:

$30\% = \frac{3}{10}$

CP 10 → 29
SP 13 → ×3 → 39

Now, profit % = $\frac{29}{10} \times 100 = 290\%$

2. (c)
$a + b = 5$
$b + c = 7$
$c + a = 6$
$2(a + b + c) = 18$
$(a + b + c) = 9$

then, c = 4, b = 3, a = 2

$\frac{a - b + c}{a + b - c} = \frac{2 - 3 + 4}{2 + 3 - 4} = \frac{3}{1}$

3. (b) $2 + 0.\overline{3} + 4 + 0.\overline{3}$

$\Rightarrow 6 + \frac{3}{9} + \frac{3}{9} \Rightarrow 6 + \frac{1}{3} + \frac{1}{3} \Rightarrow 6 + \frac{2}{3} = \frac{20}{3}$

4. (a) $\sin^2 \frac{360}{3} + \cos^2 \frac{900}{6} - \tan^2 \frac{540}{4}$

$\Rightarrow \sin^2 120° + \cos^2 150° - \tan^2 135°$
$\Rightarrow \sin^2(90° + 30°) + \cos^2(90° + 60°) - \tan^2(90° + 45°)$
$\Rightarrow \cos^2 30° + \sin^2 60° - \cot^2 45°$

$\Rightarrow \left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 - (1)^2$

$\Rightarrow \frac{3}{4} + \frac{3}{4} - 1 \Rightarrow \frac{6}{4} - \frac{4}{4} = \frac{2}{4} = \frac{1}{2}$

5. (c) P → 5, Q → 10, R → 15
Total work = 30
P+Q: 6, P+R: 3, P+Q: 2, P+R = 4

P+Q	P+R	P+Q	P+R = 4
9	8	9	8

26 work complete in = 3 days
then, Remaining work = 30 – 26 = 4

So, 4 work complete in = $\frac{4}{8} = \frac{1}{2}$ days

Total days = $3 + \frac{1}{2} = \frac{7}{2}$

6. (c) ATQ

$\frac{P_1}{Q_1 \times (100 \pm P_1 / L_1)} = \frac{P_2}{Q_2 \times (100 \pm P_2 / L_2)}$

$\Rightarrow \frac{85}{50 \times 85} = \frac{x}{50 \times 135}$
$\Rightarrow x = 135$

7. (c) Unpainted area = (Area of cube) – area of circle × 6
$6a^2 - \pi r^2 \times 6$

$\Rightarrow 6\left[(14)^2 - \frac{22}{7} \times 7 \times 7\right]$
$\Rightarrow 6[196 - 154]$
$\Rightarrow 6 \times 42 = 252 \text{ cm}^2$

8. (b) C.I of the 2nd year = 1400
C.I of the 3rd year = 2996
Difference = 2996 – 1400 = 1596
We get interest 1596 at 1400.

So, Rate% = $\frac{1596}{1400} \times 100 = 114\%$

9. (b) ATQ,

$\frac{4}{3}\pi r^3 = \pi R^2 h \Rightarrow \frac{4}{3} \times 5 \times 5 \times 5 = R^2 \times \frac{5}{3}$

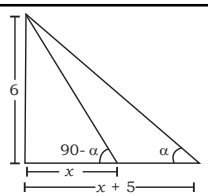
$R^2 = \sqrt{25 \times 4} \Rightarrow R^2 = \sqrt{100}$
R = 10
Hence, diameter = 10 × 2 = 20

10. (d) Divisibility of 8 → last 3 digit should be divisible by 8.
83y
832
y = 2
Divisibility of 3 → Digital sum of numbers should divisible by 3
then,
x + 2 = Divide by 3
We can put x = 1, 4 and 7

$2x - y$	$2x - y$	$2x - y$
2–2 = 0	8–2 = 6	14–2 = 12

So, we can say that 9 is not divisible by 24.

11. (a)



$\tan(90-\alpha)=\frac{6}{x}$, $\tan(\alpha)=\frac{6}{x+5}$

$\cot\alpha=\frac{6}{x}$, $\tan\alpha=\frac{6}{x+5}$

$\tan\alpha=\frac{x}{6}$, $\tan\alpha=\frac{6}{x+5}$

then $\frac{x}{6}=\frac{6}{x+5}$

$x^2 + 5x = 36 \Rightarrow x^2 + 5x - 36 = 0$

$x^2 + 9x - 4x - 36 \Rightarrow x(x + 9) - 4(x + 9) \Rightarrow x - 4 = 0$

Hence, $x = 4$

12. (b) ATQ,

Income = Expenditure + Saving

130 = 100 + 30

$\downarrow -10\%$ $\downarrow +3\%$

117 = 103 14

Saving decrease (in%)

$= \frac{30-14}{30}\times 100 = \frac{16}{30}\times 100 = 53\frac{1}{3}\%$

13. (b) Diagonal = $6\sqrt{3}$

$a\sqrt{3} = 6\sqrt{3} \Rightarrow a = 6$

then, $l = 18$, $b = 6$, $h = 6$

So, Total surface area = $2(lb + bh + hl)$

$= 2(108 + 36 + 108) = 2 \times 252 = 504$

14. (d) If given two equation and three variable

So, we take any one variable 0.

Here, Let C = 0

then, $a + b = 6$, $a^2 + b^2 = 38$, $ab^2 + ba^2 = ?$

$(a+b)^2 = a^2 + b^2 + 2ab$

$36 = 38 + 2ab$

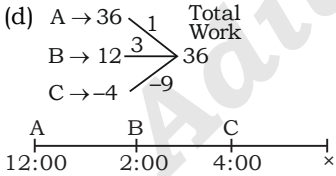
$-2 = 2ab$

$-1 = ab$

So, $ab^2 + ba^2$

$ab(b + a) \Rightarrow -1 \times 6 = -6$

15. (d)



$\Rightarrow 4A + 2B + (A + B + C) \times t = 0$

$\Rightarrow 4 + 6 + (1 + 3 - 9) \times t = 0$

$\Rightarrow 10 - 5t = 0 \Rightarrow 10 = 5t \Rightarrow t = 2$

Two hour after 4:00 pm

So, 6:00 pm

16. (b) Sum of two interior angle = Exterior angle

$\angle VTW = \angle S + \angle V = 74° + 42° = 116°$

So, $\angle TVW + \angle VTW = 136°$

$\angle TVW + 116 = 136°$

$\angle TVW = 136° - 116° = 20°$

17. (a)

P	Q	R	
Profit → 1430	1870	2420	
143 :	187 :	242	⇒ 572
	↓ ×90.9		↓ ×90.9(approx)
	17000		52000

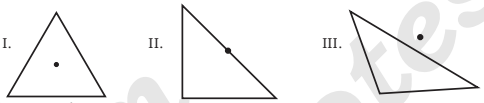
Hence, investment made by Q = Rs.17000

18. (a) $\frac{3}{1^2\times 2^2}+\frac{5}{2^2\times 3^2}+\frac{7}{3^2\times 4^2}+.....$

$\left(\frac{1}{1^2}-\frac{1}{2^2}\right)+\left(\frac{1}{2^2}-\frac{1}{3^2}\right)+\left(\frac{1}{3^2}-\frac{1}{4^2}\right)+.....+\left(\frac{1}{\infty^2}\right)$

$1-\frac{1}{\infty^2} \Rightarrow 1 - 0 = 1$

19. (b) I. II. III.



Only IInd correct.

20. (b) $\pi r^2 = 9\pi$

$r = 3 \Rightarrow h = \frac{\sqrt{3}}{2}a \Rightarrow 6 = \frac{\sqrt{3}}{2}a \Rightarrow a = \frac{12}{\sqrt{3}}$

by rationalize: $\Rightarrow a = \frac{12\times\sqrt{3}}{3} = 4\sqrt{3}$

21. (d) $\pi r^2 - \frac{\theta}{360}\pi r^2 = \pi r^2\left(1-\frac{1}{6}\right) = \pi\times 6^2\times\frac{5}{6} = 30\pi$

$\frac{\sqrt{3}}{4}a^2 - \frac{\theta}{360}\pi r^2 = \frac{\sqrt{3}}{4}\times(4\sqrt{3})^2 - \frac{60}{360}\times\pi\times 6^2 = 12\sqrt{3} - 6\pi$

$= 30\pi + 12\sqrt{3} - 6\pi = 24\pi + 12\sqrt{3} = 12(2\pi + \sqrt{3})$

22. (c) Extra wrongly extered marks = 54 – 45 = 9

Average increased by = 0.5

So, total students = $\frac{9}{0.5} = 18$

23. (c) $\left[\frac{\sin(A+B)+\sin(A-B)}{\cos(A+B)+\cos(A-B)}+1\right]$

$\frac{2\sin A\cos B}{2\cos A\sin B}+1 \Rightarrow \frac{\sin A}{\cos A}+1$

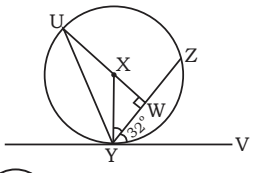
$\tan A + 1$

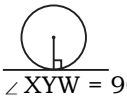
$\frac{5}{6}+1=\frac{11}{6}$

24. (b) L.C.M of (50, 75, 100) = 300 sec

in minute = $\frac{300}{60} = 5$ minute

25. (a)





$\angle XYW = 90 - 32 = 58$

$\angle YXW = 180 - (58 + 90)$

$= 32°$

By same chord, if angle of centre 32° then angle on circumference will be half.

then, $\angle YUW = \frac{32}{2} = 16°$

1. Which is the smallest multiple of 7, which leaves 5 as remainder in each case, when divided by 8,9,12 and 15?

´`^ ˜ fd ifjlhe ]Øer ` ¼ fç (t¢ d f° ´ ` s´ ? ´ s´ n¢ ´ ´

´ ˆ lá fh ´ ´ ˆ x ´ ´ ´ ˆ ¢ ¼ B

SSC CGL 12/04/2022 (Shift-01)

(a) 365 (c) 2525

(b) 1085 (d) 725

2. A fruit vendor brings 1092 apples and 3432 oranges to a market. He arranges them in heaps of equal number of oranges as well as apples such that every heap consists of the maximum possible number of the fruits. What is this number?

SSC MTS 05/10/2021 (Shift-01)

(a) 78 (b) 312

(c) 39 (d) 156

3. If $(3x + 2y)^3 + (3x - 2y)^3 = 3kx(3x^2 + 4y^2)$, then the value of k will be:

?kd $(3x + 2y)^3 + (3x - 2y)^3 = 3kx(3x^2 + 4y^2)$ (rk k dk eku D;k gksxk\

SSC CHSL 09/08/2021 (Shift- 1)

(a) 6 (b) 9

(c) 18 (d) 3

4. The speed of a bus without stoppages is 40 km/h and with stoppages is 32 km/h. How many minutes per hour does the bus stop?

SSC MTS 08/10/2021(Shift-02)

(a) 18 (b) 15

(c) 12 (d) 16

5. Ramesh saves $26\frac{2}{3}\%$ of his monthly salary. When his expenses are increased by 20%, he is able to save Rs.4,080 per month. His monthly salary is:

$26\frac{2}{3}\%$

SSC CHSL 09/08/2021 (Shift-02)

(a) Rs.30,000 (b) Rs.34,000

(c) Rs.35,000 (d) Rs.38,000

6. If 2tan x + 3cot x = 5, then the value of $4\tan^2x + 9\cot^2x$ is:

?kd 2tan$x$ + 3cot$x$ = 5 (rk $4\tan^2x + 9\cot^2x$ dk eku D;k gS\

SSC CHSL 12/04/2021 (Shift-02)

(a) 11 (b) 15

(c) 17 (d) 13

7. The distance between two equal parallel chords of a circle is 10 cm. If the chords are 24 cm long, then what is the length of the radius?

SSC CHSL 05/08/2021 (Shift-03)

(a) $2\sqrt{61}$ cm (b) 13 cm

(c) 26 cm (d) 17 cm

8. Amit purchased stationery marked for Rs.8,000 at 12% discount and spent Rs.160 on transportation. He sold the stationery at the marked price. Find his profit percentage.

SSC CHSL 06/08/2021 (Shift-03)

(a) 10% (b) 12%

(c) $11\frac{1}{9}\%$ (d) $12\frac{1}{2}\%$

9. A and B together can complete a certain work in 20 days whereas B and C together can complete it in 24 days. If A is twice as good a workman as C, then in what time will B alone do 40% of the same work?

SSC CGL 18/08/2021(Shift-01)

(a) 12 days (b) 10 days

(c) 18 days (d) 15 days

10. The total surface area of a cylinder is 4092 cm^2 and the diameter of its base is 21 cm. What is 50% volume (in cm^3) of the cylinder (nearest to an integer)?

SSC CGL TIER-II 29/01/2022

(a) 8922 (b) 8832

(c) 8822 (d) 8932

11. **Sides AB and AC of ΔABC are produced to points D and E, respectively. The bisectors of ∠CBD and ∠BCE meet at P. If ∠A=78°, then the measure of P is:**

ΔABC ˆ izjes s[kkvksa AB rFkk AC ˆ ˆ dks 2 vkSj ÷ ds ckn D rFkk E i ˆ rd c<+k;k ˆ)?ˆ (;k ∠CBD rFkk ∠BCE ˆ ds f}Hkkts: ˆ d fcUnq P ij feyrs gSaA ;fn ∠A = 78° gS rks P ˆ ˆ dk eku ?ˆ (gS8

SSC CGL 12/04/2022 (Shift-02)

(a) 51°
(b) 61°
(c) 55°
(d) 56°

12. **What is the ratio of the mean proportional between 1.2 and 10.8 to the third proportional to 0.2 and 1.2?**

ˆ 1.2 rFkk 10.8 ˆ dk e/;kuqikrh rFkk 0.2 rFkk 1.2 ˆ dk r`rh;kuqikrh ˆ ˆ dk vuqikr Kkr dhft,A

SSC CHSL 10/08/2021 (Shift-03)

(a) 3 : 1
(b) 2 : 1
(c) 1 : 3
(d) 1 : 2

13. **A certain sum of money becomes 4 times in 12 years when invested at simple interest. In how many years will it become 10 times of itself at the same rate?**

fd 7 pØ ˆ B?Ø ˆ ÷ ˆ ˆ dqN /kujkf'k lk/kkj.k C;kt ij 12 o"kZ esa 4 xquk gks tkrh gSA leku nj ij og fdrus o"kZ esa 10 xquk gks tk,xh8

SSC MTS 18/10/2021 (Shift-02)

(a) 60
(b) 48
(c) 24
(d) 36

14. **A sum of Rs. 6,400 invested on the basis of yearly compounding of interest, grows to Rs. 7,056 in two years. What is the percentage rate of interest?**

3 6,400 ˆ dh jkf'k ˆ ˆ 2 o"kZ esa okf"kZd :i ls pØo`f) C;kt ij fuos'k djus ij 7,056 gks tkrh gSA C;kt dh izfr'kr nj D;k gS8

SSC MTS 05/10/2021 (Shift-01)

(a) 4
(b) 7.5
(c) 5
(d) 6.25

15. **A batsman in his 13th innings makes a score of 97 runs, thereby increasing his average score by 5. What is his average score after the 13th innings?**

,d cYysckt viuh 13oha ikjh esa 97 ju cukrk gS] ftlls mldk vkSlr Ldksj 5 c<+ tkrk gSA 13oha ikjh ds ckn mldk vkSlr Ldksj D;k gS8

SSC CHSL 11/08/2021 (Shift-01)

(a) 37
(b) 57
(c) 77
(d) 67

ANSWER KEY

1.(b)	2.(d)	3.(a)	4.(c)	5.(b)	6.(d)	7.(b)	8.(c)	9.(a)	10.(a)
11.(a)	12.(d)	13.(d)	14.(c)	15.(a)					

SOLUTIONS

1. (b) L.C.M of (8, 9, 12, 15) × k + 5 = 360k + 5
k = 1 ⇒ 365 (×)
k = 2 ⇒ 725 (×)
k = 3 ⇒ 1085 (✓)
Divisible by 7.

2. (d) H.C.F of (1092, 3432) = 156

3. (a) $a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$
$(3x + 2y)^3 + (3x - 2y)^3 = 3kx(3x^2 + 4y^2)$
$(3x + 2y + 3x - 2y)[9x^2 + 4y^2 + 9x^2 + 4y^2 - 9x^2 + 4y^2]$
$6x(9x^2 + 12y^2] = 3kx[3x^2 + 4y^2]$
$6x \times 3[3x^2 + 4y^2] = 3kx(3x^2 + 4y^2)$
$6x \times 3 = 3kx$
k = 6

4. (c) $\frac{\text{Difference of both speed}}{\text{Original speed}} \times 60 \Rightarrow \frac{40-32}{40} \times 60$

$\frac{8}{40} \times 60 = 12\,\text{min}$

5. (b) Saving = Income × $26\frac{2}{3}\%$

$S = I \times \frac{80}{3 \times 100}$

$\frac{S}{I} = \frac{4}{15}$

Income	Exp	Saving
1500x	1100x	400x
	↓ +220x	↓ −220x
	180x	

$180x \rightarrow 4080$

$1500x = \frac{4080}{180x} \times 1500x$ = Rs.34000

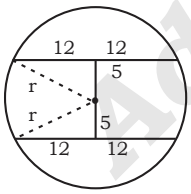
6. (d) $2\tan x + 3\cot x = 5$
$(a + b)^2 = a^2 + b^2 + 2ab$

$4\tan^2 x + 9\cot^2 x + 2 \times 2 \times \frac{3}{1} = 25$

$4\tan^2 x + 9\cot^2 x = 25 - 12 = 13$

Alternate Method:-
⇒ By value putting
$x = 45°$
$2 \times \tan 45° + 3\cot 45° \Rightarrow 2 + 3 = 5$
then, $4 \times (1)^2 + 9 \times (1)^2$
$4 + 9 = 13$

7. (b)



$r^2 = (5)^2 + (12)^2 \Rightarrow r = \sqrt{25+144}$

$r = \sqrt{169} = 13$

8. (c)

CP		SP
$\left(8000 \times \frac{88}{100}\right) + 160$	:	8000
9	:	10

Profit% = $\frac{1}{9} \times 100\% = 11\frac{1}{9}$

9. (a) A + B → 20 (6), B + C → 24 (5) → 120

A : C
2 : 1

then, $\frac{120 \times \frac{40}{100}}{4} \Rightarrow \frac{120 \times 40}{4 \times 100} = 12$ days

10. (a) $2\pi r(r + h) = 4092$

$2 \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2}\left(\frac{21}{2} + h\right) = 4092$

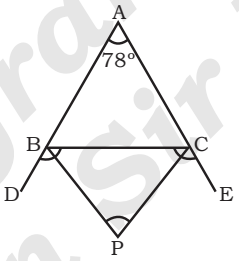
$\left(\frac{21}{2} + h\right) = 62 = \frac{103}{2}$

50% volume of cylinder = $\frac{\pi r^2 h}{2}$

$= \frac{1}{2} \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2} \times \frac{103}{2}$

8922.375 = 8922

11. (a)



$\angle P = 90 - \frac{\angle A}{2}$

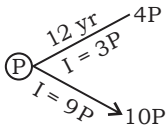
$= 90° - \frac{78°}{2}$

$= 90° - 39° = 51°$

12. (d)

Mean proportion		Third Proportion
$\sqrt{1{\cdot}2 \times 10{\cdot}8}$	:	$\frac{1{\cdot}2 \times 1{\cdot}2}{0{\cdot}2}$
$\frac{12 \times 3}{10}$	:	$\frac{12 \times 6}{10}$
1	:	2

13. (d)



3P	→	12 yr
↓ ×3		↓ ×3
9P		12×3 = 36 yr

14. (c)

$\frac{\text{Amount}}{\text{Principal}} = \frac{7056}{6400} = \sqrt{\frac{441}{400}} = \frac{21}{20}$ C.I = 1

then, Rate = $\frac{1}{20} \times 100\% = 5\%$

15. (a) Bastman make the run 13th inning = 97 after that inning overall average increase by 5.
then, his average score after 13th inning
97 − (5 × 12)
97 − 60 = 37

1. The sum of two numbers is 1224 and their HCF is 68. The number of pairs of numbers satisfying the above condition is:

`हं ˆमर्f दे ह्मले ˆ f ह्रएग्ट अरचं (ा दे ह्त ¸ थ्ले ˆ ˆ संस्थस (HCF) 68 (ह्त ˆ ˆमर्f दे ह्मलेंहलच ˆ क्ती थ्हfह्रि ˆ ¸ एते ह्मी कक्कें ˆ लें हं मिक्त ˆ लतीं ह(ह्री

SSC CPO 09/11/2022 (Shift-02)

(a) 3 (b) 4
(c) 6 (d) 2

2. A dealer purchased a water cooler for Rs.5,800. He allows a discount of 12% on its marked price and still gains 10%. Find the marked price of the water cooler.

स्लें र्जि ऐ तर्फ थ्हवक्ष,ऱ्ˆ 8एर्fहं ह्र0 यतें लटतें 5 तमें ˆ न 0(ˆ % लॅहद क्ती ˆ ˆ ह्रf एतें अ्र ˆ लर्त लह्र ˆ हैं ˆ (ा दे ह्त व्यगें डे र्त अ्र ˆ ले ˆ ट डें ˆ 1 क्रि ˆ लतीं ˆ (ह्त 0 यतें लटत लें ˆ द क्ती ˆ ˆ ह्रf छेीं ˆ लम्ब्रस्न

DP Head Constable 10/10/2022 (Shift- 01)

(a) Rs.7,220 (b) Rs.6,880
(c) Rs.7,250 (d) Rs.7,280

3. In a ΔPQR, PQ = PR, and S is a point on PQ, such that PS = RS = QR. Then what is the measure of ∠QPR?

ΔPQR ˆ ह्रPQ = PR ˆ दे ह्त PQ एतें S क्मॅपस्हर्न कक्कें ˆ ह्र(ा क्तं PS = RS = QR हैं ी ह∠QPR ले ˆ ˆ थ्ˆ क्ती थ्ˆ (हे ?

DP Head Constable 10/10/2022 (Shift- 01)

(a) 72° (b) 60°
(c) 36° (d) 23°

4. ABCD is a quadrilateral in which AB || DC. E and F are the midpoints of the diagonals AC and BD, respectively. If AB=18 cm and CD = 6 cm, then EF = ?

ABCD स्लें 7ी ह्रे ह्रं (ा क्तं ˆ ह्रAB || DC. E दे ह्त F र्ख हेर्ते क्तलर्र्दे ˆAC दे ह्त BD लॅहं .f कमॅपAB=18 ˆहर्म दे ह्त CD = 6 ˆहर्मे ी ह्रEF = ?

SSC CGL MAINS 29/01/2022

(a) 8 cm (b) 6 cm
(c) 12 cm (d) 9 cm

5. As part of Diwali offer, a jeweller allows a discount of 15%. Even after giving the discount, he makes a profit of 6.25%. Rani bought a gold chain which was marked at Rs.5,000 from this jeweller. Find the cost price of the chain for the jeweller.

क0 ट र्दे एर्गें लॅहद मी ह्रf स्लें प्रे (तें अ्र ˆ लर्त लह्र ˆ हैं ˆ (ह्त लह्र ˆ ह्र हॅलॅहछे ˆ डे र्त ¸ ˆहबसवू ˆ लें ˆ ट डें ˆ (हैं ˆ (ह्तेथ्रं थ्ह ˆ ह्रॅहलर्क्त स्लें 7 हुै ˆ तम् र्त क्त ˆ लें ˆ ˆ ह्रf % ˆ प्रे (तें लॅहछे ते वक्ष ऱ्ˆ 8एर्fहद क्ती ˆ क्तf ˆ)f ˆ क्रैनप्रे (तें लॅहक्षर्त 7 हें ले खर्f ˆ ह्रf छेीं ˆ लम्ब्रस्न

SSC CHSL 31/05/2022 (Shift- 2)

(a) Rs.5,000 (b) Rs.4,400
(c) Rs.3,400 (d) Rs.4,000

6. The median of the given data is :

कर्तें)र्से भे ये ˆ लर्त ˆ ˆ कf ले ˆ (ा त

$\frac{1}{2}, \frac{2}{7}, \frac{3}{4}, \frac{1}{3}, \frac{5}{8}$

SSC MTS 13/08/2019 (Shift- 01)

(a) $\frac{3}{4}$ (b) $\frac{2}{7}$
(c) $\frac{1}{3}$ (d) $\frac{1}{2}$

7. The average weight of apples in a basket is 50 kg. 6 more apples with the average weight of 60 kg are added in the basket. If the average weight of the basket is increased by 5 kg, then find the number of apples in the basket originally.

क्त र्त ये ह्रातें ˆ ह्रत5 हं हे ह्रले ˆ दे ा ी ˆ डे तें क ˆ क्त)ए (हु ˆ ˆ ये ह्रातें ˆ ह्रक ˆ क्त)ें दे ा ी ˆ डे तें 0 टहेंब दे ह्त ˆ हें कटे र्से प्रे ी ह(ह्म fकें ये ह्रातें लॅहं हे ह्रलॅहद ा ी डे तें ˆ ह्रवं क्त)ें लर्त 0क ˆ (हेम्ं ी हये ह्रातें ˆ ह्र1 तह्र ˆ ह्रत5 हं हे ह्रलं ˆ ˆमर्f छेीं ˆ लम्ब्रस्न

SSC CGL 07/12/2022 (Shift- 04)

(a) 4 (b) 6
(c) 2 (d) 8

8. If 1 + sinθ = mcosθ, then what is the value of sinθ?

f कें 1 + sinθ = mcosθ (हैं ी हsinθ लें ˆ ˆ थ्ˆ र्जि ˆ (हे ?

SSC CGL 07/12/2022 (Shift- 02)

(a) $\frac{2m^2-1}{m^2+1}$ (b) $\frac{m^2-1}{m^2+1}$
(c) $\frac{m^2+1}{2m^2-1}$ (d) $\frac{m^2+1}{m^2-1}$

9. A can do a work in 20 days, B can do the same work in 25 days. They started the work together. Few days later C also joined them and thus all of them completed the whole work in 10 days. All of them were paid total of Rs.700. What the share of C?

A dk;Z dks 20 fnuksa esa iwjk dj ldrk gS] B ml dk;Z dks 25 fnuksa esa iwjk dj ldrk gSA mUgksaus ,d lkFk dk;Z 'kq: fd;kA dqN fnuksa ds ckn C Hkh mlesa 'kkfey gks x;k vkSj bl izdkj lHkh us feydj iwjk dk;Z 10 fnuksa esa iwjk fd;kA mu lHkh dks dqy 700 #i;s dk Hkqxrku fd;k x;kA C dk fgLlk Kkr dhft,A

(a) Rs.55 (b) Rs.65
(c) Rs.75 (d) Rs.70

10. Find the difference between the simple interest and the compound interest payable annually on a sum of Rs.6,500 at the rate of 7% per annum for 3 years. (Give the correct answer up to two decimal places)

Rs.6,500 dh jkf'k ij 7% izfro"kZ dh nj ls 3 o"kZ ds fy, ok£"kd :i ls ns; lk/kkj.k C;kt vkSj pØo`f) C;kt ds chp dk varj Kkr dhft,A ¼lgh mÙkj nks n'ketyo LFkkuksa rd nhft,½

SSC CPO 09/11/2022 (Shift-02)

(a) Rs.94.34 (b) Rs.97.78
(c) Rs.98.73 (d) Rs.95.67

11. If the 9-digit number 72x8431y4 by 36, what is the value of $\left(\frac{x}{y}-\frac{y}{x}\right)$ for the smallest possible value of y, given that x and y are natural numbers?

;fn 9 vadksa dh la[;k 72x8431y4, 36 ls foHkkT; gS] tgk¡ x vkSj y izkd`r la[;k,¡ gSa] rks y ds U;wure laHko eku ds fy, $\left(\frac{x}{y}-\frac{y}{x}\right)$ dk eku D;k gksxk\

SSC CPO 09/11/2022 (Shift-03)

(a) $1\frac{5}{7}$ (b) $2\frac{1}{10}$
(c) $1\frac{2}{5}$ (d) $2\frac{9}{10}$

12. If Sapna walks at 4 km/hr, she misses the bus by 10 minutes. If she walks at 5 km/hr, she reaches 5 minutes before the arrival of the bus. How far does she walk to reach the bus stand?

;fnliuk 4 km/hr dh pky ls pyrh gS] rks og 10 feuV ls cl pwd tkrh gSA ;fn og 5 km/hr dh pky ls pyrh gS] rks og cl ds vkus ls 5 feuV igys igq¡p tkrh gSA cl LVSaM rd igq¡pus ds fy, og fdruh nwjh rd pyrh gS\

(a) 5.5 km (b) 4 km
(c) 5 km (d) 4.5 km

13. Given that ab + bc + ca = 191 and $a^2 + b^2 + c^2 = 194$. If a, b and c are distinct positive integers and abc = 504, what is the value of $a^3 + b^3 + c^3$?

fn;k x;k gS fd ab + bc + ca = 191 vkSj $a^2 + b^2 + c^2 = 194$ gSA ;fn a, b vkSj c fHkUu /kukRed iw.kk±d gSa vkSj abc = 504 gS] rks $a^3 + b^3 + c^3$ dk eku Kkr djsaA

(a) 1584 (b) 1854
(c) 1458 (d) 1485

14. Find the value of $\frac{\sec^2 70^\circ - \cot^2 20^\circ}{2(\csc^2 59^\circ - \tan^2 31^\circ)}$.

$\frac{\sec^2 70^\circ - \cot^2 20^\circ}{2(\csc^2 59^\circ - \tan^2 31^\circ)}$ dk eku Kkr djsaA

(a) 1
(b) 4
(c) $\frac{1}{2}$
(d) 3

15. A train travels a certain distance with the uniform speed. If the speed of train is 14 km/h more, then the time taken to travel the same distance is 2 hour less. If the speed of train is 10 km/hr less, then time will be 2 hour more. Find the distance and the time taken to travel the distance.

,d Vªsu ,dleku xfr ls ,d fuf'pr nwjh r; djrh gSA ;fn Vªsu dh xfr 14 fdeh-@?kaVk vf/kd gks] rks leku nwjh r; djus esa yxus okyk le; 2 ?kaVs de gks tkrk gSA ;fn Vªsu dh xfr 10 fdeh-@?kaVk de gks] rks le; 2 ?kaVs vf/kd gksxkA nwjh vkSj nwjh r; djus esa yxus okyk le; Kkr djsaA

(a) 420 km, 12 hr
(b) 840 km, 8 hr
(c) 840 km, 12 hr
(d) Can't be determind

16. In a kilometer race, A can beat B by 40 meters and B can beat C by 50 meters. By how many meters can A beat C in 500 meters race?

1 कर्ा ई ` म्6 ह्य A, B ले ह40 ' म्यतं ' ह(तें ' र्ली (ी दे त B, C ले ह50 ' म्यतं ' ह(तें ' र्ली ' (त 500 ' म्यतं ` म्6 हA, C ले हकी थ्र्ह म्यतं ' ह(ते स) ?

(a) 44 meters (b) 48 meters

(c) 54 meters (d) 58 meters

17. If $(x + 2)$ and $(x - 3)$ are the factors of $x^2 + k_1x + k_2$, then:

कि $(x+2)$ दे त $(x-3)$, $x^2 + k_1x + k_2$ लॅह)षेप्र (ई ी ह

SSC CHSL 09/06/2022 (Shift 02)

(a) $k_1 = 1$ and $k_2 = -6$

(b) $k_1 = -1$ and $k_2 = -6$

(c) $k_1 = -1$ and $k_2 = 6$

(d) $k_1 = 1$ and $k_2 = 6$

18. A tangent is drawn from a point P to a circle, which meets the circle at T such that PT = 8 cm. A secant PAB intersects the circle in points A and B. If PA = 5 cm, what is the length (in cm) of the chord AB?

ले ह्र।एखेतैहे कक्ष्यP ' ह0़ एतं ` म्र्म प्रे ी ई (ई ी ह कक्ष्यT एतं 0़ ' ह% एो तं कटी ई (ी कर्ा PT = , ' हर्म (त्त लहल तैहे PAB, 0़ ले हकक्ष्यA दे त B एत एकिज्ल्ह्री लती ई (त्ति कि PA = 5 ' हर्म (ई ी हप्रफ़े AB लर्म टबे %6 ' हर्म ह्ह्रछोी लता

SSC CGL 23/08/2021 (Shift 02)

(a) 6.4 (b) 8.4

(c) 7.8 (d) 8.0

19. A smaller circle touches a bigger circle internally and also passes through the center 'O' of the bigger circle. If the area of the smaller circle is 192 cm², the area of the bigger circle (in cm²) is:

स्लॅ ले ह्रे 0़ स्लॅ द भ्र्ह0़ ले हदे मेकक्लॅ . एं ' ह ।एखेंन्लती (ी दे त द भ्र्ह0़ लॅहलहा 'O' ' हडे ई)प्रती (त्त कि ले ह्र्ह0़ ले श्रेह्रएग्ह अत्र ' हर्म (ई ी हद भ्ह 0़ ले श्रेह्रएग्ह ब ' हर्म ' ह्ह्र छोी लम्व्रस्न

SSC MTS 05/07/2022 (Shift- 3)

(a) 768

(b) 384

(c) 1024

(d) 720

20. The radius of a solid metallic sphere is equal to 15 cm. It is melted and drawn into a long wire of radius 15 mm having uniform cross-section. Find the length of the wire.

स्लॅ त्रेह्र 9 ी पलॅह)हहलर्म क्रे-ि 15 cm (त % ह क्वोठटे ि प्रे ी (ी दे त स्लॅ ` ` ४ खेश्ड ह्र्हे6 ब द थ्प्क्रे ले यद्ध 0 टह15 mm क्रे-ि ले स्लॅ टबे ी तं द 8 ि प्रे ी (त्ति तं लर्म टबे %छोी लता

SSC CHSL 27/05/2022 (Shift- 3)

(a) 2100 cm

(b) 1900 cm

(c) 1800 cm

(d) 2000 cm

ANSWER KEY

1.(a)	2.(c)	3.(c)	4.(b)	5.(d)	6.(d)	7.(b)	8.(b)	9.(d)	10.(b)
11.(b)	12.(c)	13.(a)	14.(c)	15.(c)	16.(a)	17.(b)	18.(c)	19.(a)	20.(d)

SOLUTIONS

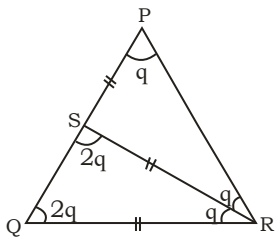
1. (a) I = 68x, II = 68y
$68x + 68y = 1224$
$68(x + y) = 1224$
$(x + y) = 18$
We take only co-prime number.
(1, 17), (5, 13), (7, 11)
So, total pairs = 3

2. (c) $\frac{MP}{CP} = \frac{100 \pm P/L}{100 - D}$

$$\frac{MP}{5800} = \frac{110}{88}$$

$$MP = \frac{110 \times 5800}{88} = Rs.7250$$

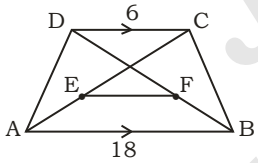
3. (c)



∠QSR = 2 (By exterior angle theorm)
PQ = PR
then, ∠PQR = ∠PRQ
$2\theta = 2\theta$
$5\theta = 180°$

$$\theta = \frac{180}{5} = \theta = 36°$$

4. (b)



ATQ,

$$EF = \frac{(AB - CD)}{2}$$

$$= \frac{18 - 6}{2} = \frac{12}{2} = 6$$

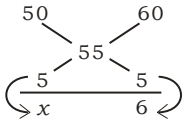
5. (d) $\frac{MP}{CP} = \frac{100 \pm P/L}{100 - D}$

$$\frac{5000}{x} = \frac{106.25}{85}$$

CP = Rs.4000

6. (d) $\frac{1}{2}, \frac{2}{7}, \frac{3}{4}, \frac{1}{3}, \frac{5}{8}$
in % ⇒ 50%, 28%, 75%, 33%, 62.5%
Ascending order ⇒ 28%, 33%, 50%, 62.5%, 75%

7. (b) By Aligation:-



5 unit = 6
$x = 6$

8. (b)
$1 + \sin\theta = m\cos\theta$

$$\Rightarrow m = \frac{1+\sin\theta}{\cos\theta} = \sqrt{\frac{(1+\sin\theta)^2}{1-\sin^2\theta}}$$

$$\Rightarrow \sqrt{\frac{(1+\sin\theta)(1+\sin\theta)}{(1-\sin\theta)(1+\sin\theta)}} = \sqrt{\frac{1+\sin\theta}{1-\sin\theta}}$$

$$\Rightarrow \frac{m^2}{1} = \frac{1+\sin\theta}{1-\sin\theta}$$

Using component and dividend.

$$\frac{m^2+1}{m^2-1} = \frac{1}{\sin\theta} \Rightarrow \sin\theta = \frac{m^2-1}{m^2+1}$$

9. (d) $\begin{matrix} A \to 20 \\ B \to 25 \end{matrix} \Big\rangle \begin{matrix} 5 \\ 4 \end{matrix} \Big\rangle 100$
(A + B) Complete work in 10 days = 9 × 10 = 90
Remaining work complete by B
Work ⇒ (A + B) B
90 : 10
9 : 1

$$\text{Share of C} = \frac{700}{10} \times 1 = Rs.70$$

10. (b) Diff of CI – SI $= P\left(\frac{R}{100}\right)^2\left(\frac{300+R}{100}\right)$

$$= 6500 \times \frac{7}{100} \times \frac{7}{100} \times \frac{307}{100}$$

$$= \frac{637 \times 307}{2000} = 97.779 = 97.78$$

11. (b) Let y = 2 (Smallest possible value)
Then $\frac{24}{4}$ (Divided by 4)
Now, check for 9
7 + 2 + x + 8 + 4 + 3 + 1 + 2 + 4
13 + x
13 + 5 = 18 Divided by 9.
$x = 5$

Hence, $\frac{x}{y} - \frac{y}{x} = \frac{5}{2} - \frac{2}{5} = \frac{25-4}{10} = \frac{21}{10} = 2\frac{1}{10}$

12. (c) Speed = 4 : 5
Time = 5 : 4
1 unit = 15 minute
5 unit = 15 × 5 = 75 minute
in hr = $\frac{75}{60} = \frac{5}{4}$ hr

Distance = 4 km/h × $\frac{5}{4}$ hr = 5 km

Alternate Method:-

$\frac{\text{Multiply of both speed}}{|\text{Difference of both speed}|} \propto$ time (in hour)

$= \frac{4 \times 5}{1} \times \frac{15}{60}$ = 5 km

13. (a) $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$
$= 194 + 2(191)$
$= 194 + 382 = 576$
$a + b + c = \sqrt{576}$
$a + b + c = 24$
$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - (ab + bc + ca))$
$x - 1512 = 24(194 - 191)$
$x - 1512 = 72$
$x = 1584$

14. (c) $\frac{\sec^2 70° - \cot^2 20°}{2(\text{cosec}^2 59° - \tan^2 31°)}$

$\frac{\sec^2(90° - \theta) - \cot^2 20°}{2(\text{cosec}^2(90 - \theta) - \tan^2 31°}$

$\frac{\text{cosec}^2 20° - \cot^2 20°}{2(\sec^2 31° - \tan^2 31°)} = \frac{1}{2 \times 1} = \frac{1}{2}$

15. (c) $\frac{(s_1 \pm d_1)}{d_1} \times \Delta t = \frac{(s_1 \pm d_2)}{d_2} \times \Delta t$

$\frac{(x+14)}{14} \times 2 = \frac{(x-10)}{10} \times 2$
$5x + 70 = 7x - 70$
$2x = 140$
$x = 70$ (initial speed)

Then, time = $\frac{70+14}{14} \times 2$

$= \frac{84}{14} \times 2 = 12$ hr

Distance = 70 km/h × 12 hr = 840 km

16. (a)

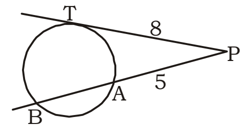
A	:	B	B	:	C
1000	:	960	1000	:	950
25	:	23	20	:	19

A	:	B	:	C
500	:	480	:	456

44

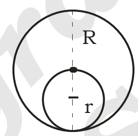
17. (b) $(x + 2) \times (x - 3)$
$x^2 - 3x + 2x - 6$
$x^2 - x - 6$
$k_1 = -1,\ k_2 = -6$

18. (c)



$(PT)^2 = PA \times PB$
$64 = 5 \times (5 + x)$
$64 = 25 + 5x$
$39 = 5x$
$x = \frac{39}{5} = 7{\cdot}8$

19. (a)



R = 2r
Given
$\pi r^2 = 192$
then,
$\pi R^2 = \pi(2r)^2 = \pi 4r^2 = 4\pi r^2$
$= 4 \times 192 = 768$

20. (d) 1 mm = 0.1 cm
15 mm = 0.1 × 15 = 1.5 cm

$\frac{4}{3}\pi r^3 = \pi r^2 h$

$\frac{4}{3}\pi(15)^3 = \pi(1.5)^2 \times h$

$\frac{4}{3} \times 15 \times 15 \times 15 = 1.5 \times 1.5 \times h$

h = 2000 cm

1 In a city, the population is increased by 12%. Due to COVID like virus it decreases by 12%. If the population of the city at present is 295680, the initial population of the city is:

एक शहर में, जनसंख्या में 12% की वृद्धि होती है। COVID जैसे वायरस के कारण इसमें 12% की कमी आती है। यदि शहर की वर्तमान जनसंख्या 295680 है, तो शहर की प्रारंभिक जनसंख्या ज्ञात करें।

CRPF HCM 22/02/2023 (Shift - 01)

(a) 313000 (b) 320000
(c) 280000 (d) 300000

2. An article sold after giving two successive discounts of 8% and 12% on its marked price of ₹650. Find the cost price of the article if he gains 60%.

एक वस्तु को उसके अंकित मूल्य ₹650 पर 8% और 12% की दो क्रमिक छूट देने के बाद बेचा जाता है। यदि उसे 60% का लाभ होता है, तो वस्तु का क्रय मूल्य ज्ञात कीजिए।

CRPF HCM 22/02/2023 (Shift - 01)

(a) ₹328.9 (b) ₹330.9
(c) ₹332.9 (d) ₹326.9

3. Sides of a triangle are 12 cm, 9 cm and 9 cm. What is the radius of the circumcircle of this triangle?

एक त्रिभुज की भुजाएँ 12 cm, 9 cm और 9 cm हैं। इस त्रिभुज के परिवृत्त की त्रिज्या क्या है?

SSC CHSL 10/03/2023 (Shift- 03)

(a) $\frac{27}{\sqrt{5}}$ (b) $\frac{(27\sqrt{5})}{10}$
(c) $\frac{54}{\sqrt{5}}$ (d) $\frac{181}{\sqrt{5}}$

4. What is the total number of factors of the number 720 except 1 and the number itself?

संख्या 720 के 1 और स्वयं उस संख्या को छोड़कर, गुणनखंडों की कुल संख्या कितनी है?

SSC CHSL 10/03/2023 (Shift- 03)

(a) 29 (b) 27
(c) 32 (d) 28

5. If an 8-digit number 1a9759b0 is divisible by 108, then the maximum value of (7a + 3b) is.

यदि 8 अंकों की संख्या 1a9759b0, 108 से विभाज्य है, तो (7a + 3b) का अधिकतम मान क्या होगा?

CRPF HCM 24/02/2023 (Shift - 02)

(a) 81 (b) 66
(c) 72 (d) 60

6. If a 6-digit number 10a82b is divisible by 112, then the value of a × b is:

यदि 6 अंकों की संख्या 10a82b, 112 से विभाज्य है, तो a × b का मान ज्ञात करें।

CRPF HCM 28/02/2023 (Shift - 01)

(a) 30 (b) 12
(c) 24 (d) 18

7. An article is sold at 10% loss. If its cost price is decreased by Rs.5 and selling price is increased by Rs.8, then profit of 10% is earned on it. What is the original selling price of the article?

एक वस्तु को 10% हानि पर बेचा जाता है। यदि इसके क्रय मूल्य में Rs.5 की कमी की जाती है और विक्रय मूल्य में Rs.8 की वृद्धि की जाती है, तो इस पर 10% का लाभ अर्जित होता है। वस्तु का मूल विक्रय मूल्य क्या है?

SSC CHSL 09/03/2023 (Shift- 03)

(a) Rs.68.5 (b) Rs.62.5
(c) Rs.67.5 (d) Rs.60.75

8. The compound interest on Rs.4500 for two years at the rate of 30% for the first year and 40% for the second year will be:

Rs.4500 पर दो वर्ष के लिए, पहले वर्ष के लिए 30% और दूसरे वर्ष के लिए 40% की दर से चक्रवृद्धि ब्याज कितना होगा?

CRPF HCM 11/03/2023 (Shift - 01)

(a) Rs.8,190 (b) Rs.4,690
(c) Rs.3,690 (d) Rs.9,000

9. A bus covers a distance without stoppages at 90 km/h, and while returning covers the same distance with stoppages at 75 km/h. Find the average stoppage time per hour.

स ˘ ल अ ंक गे ˙ ˙ हयवं कं दं ष्र्लूमें ˙ ˘)कें अंहसं ˘ ƒ ीचें ˙ ीिˇ (लिकृ िसे%अं टू ीहअवचं अिदे गं ƒ ˙ `ह ख्ं कं दं ष्र्लूमें ˙ ˘)कें अंह ˙ ीˇ (ह्र्श्कें स्र्लूमें कु श्री ध(िसं अवचं छेीˇ ˙ ˙व्ह्रस्ज्ञ

CRPF HCM 27/02/2023 (Shift - 03)

(a) 15 min (b) 8 min
(c) 10 min (d) 12 min

10. Vivek starts moving at the speed of 70 km/hr at 8:00 am. Neeraj starts moving in the same direction after 4 hours of Vivek at the speed of 120 km/hr. Which of the following statement(s) is/are correct?

कासंह ˘ अ०(ˇ म्वविं लएंहख्वं कं दं ष्र्लूमें ˙ ˘ इ े टं अह)कें ˙ गिˇ `` ० ˙ ीिˇ (ह्र 1अं ˙हक्ष स्र्लूमहले ˘ तु व कं दं ष्र्लूमें ˙ ˘ इ े टं अंहर्ग ीएं 1अं कें ``` दंह्)कें ˙ गि `` ० ˙ ीिˇ (ह्रकाश्राक केी ˙ दंह्अंहं `गं अ ष्अंहं रेुग अ(ˇ (ष्(ह्र

I. Neeraj and Vivek meet each other at 5:36 pm.

र्गीएं कु िकासंह `` दं ?ं बउं लएंहसं ˘ अंहिअह कटीहि(ह्र

II. Total distance covered by both Neeraj and Vivek till 4 pm is 1080 km.

``` दं क्ष लएंही ˘ र्गीएं कु िकासंह ` हेह्बे ी ीचें ˙ ˘)ांकं छ ˘ ƒ तवम्वं कं दं (ह्र

SSC CHSL 10/03/2023 (Shift- 02)

(a) Only II/ ह्रटं II
(b) Only I/ ह्रटं I
(c) Both I and II/I कु िII `हेह्र
(d) Neither I nor II/र्गीह्र कु िर्ग(ˇ II

11. Given that A and B are second quadrant angles, $\sin A = \frac{1}{2}$ and $\sin B = \frac{1}{5}$, then find the value of cos(A – B).

कचें)चें (ीकं A कु िB कीं चं इीहें बें ˙ हं `हे (हसinA = $\frac{1}{2}$ कु िsinB = $\frac{1}{5}$ (र्लीहcos(A – B) ˙ `` दे गं छेीˇ ˙ ˙व्ह्रस्ज्ञ

SSC CPO 09/11/2022 (Shift-03)

(a) $\frac{4\sqrt{2}+1}{15}$ (b) $\frac{8\sqrt{2}-1}{15}$
(c) $\frac{6\sqrt{2}+1}{10}$ (d) $\frac{4\sqrt{2}-1}{10}$

12. Three circles of radius 7 cm are placed in such a way that each circle touches the other two. What will be the area of the portion enclosed by these three circles?

खं अहं ˘ केन्चें से टंहीं र्गं सत्रें ।अं % ` ी िरीिह )सं (ह्र कं ˘ %ह्वह ˘ सत्रें कृत्त्वें `हं `ह8% ˙ वं ीिˇ (ह्र।र्गीगेह्र सत्रें ह्रबे ी केलिह-ह्रें ˙ ``` -ह्र%टं, चें (हे ख

SSC CHSL 10/03/2023 (Shift- 02)

(a) $49\sqrt{3} - 77$ cm²
(b) $50\sqrt{3} - 66$ cm²
(c) $40\sqrt{3} - 66$ cm²
(d) $55\sqrt{3} - 77$ cm²

13. A can contains 50 litres of a solution of spirit and water with 40% spirit in it. 5 litres of the solution is removed and 5 litres of spirit is added. The same process is done two more times. Find the percentage of water in the solution at the end (rounded off to the nearest integer).

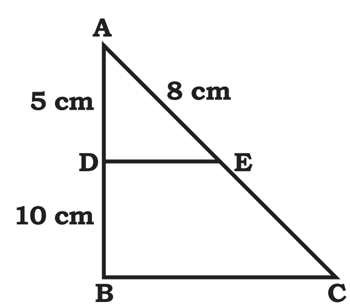
स ˘ ˙ गं दंह?वं टू ी कक्र्कू ˘ कृ ि%र्गं ˙ ``` रुहं (व्ह्अंहक्ष्वटं कक्र्कू ˘ (ह्र? टू ीरुहं कं `टं कचें ऐीं (ीकृ ि? टू ी क्षू ˘ कटे चें ऐीं ˇ (ह्रच(ˇ श्कचें `ह लेीकृ ि˙ ˘ ऐीं ˇ (ह्रकृमीं दंहरुहं दंह%र्गं ˙ ``` श्कें ी छेीं ˙ हिकां ू ीदं %ज्ञेबं ीं ˘)ह3ज्ञ

CRPF HCM 11/03/2023 (Shift - 02)

(a) 40% (b) 44%
(c) 54% (d) 48%

14. In the given figure DE || BC. If AD = 5 cm, DB = 10 cm, and AE = 8 cm, then AC is:

˘)ांक्कु ण कें दंह DE || BC ˘ (ह्रचकं AD = 5 cm, DB = 10 cm, ˘ कु िAE = 8 cm ˘ (र्लीहAC ˙ `` दे %, चें (हे ख



SSC CPO 11/09/2022 (Shift - 02)

(a) 24 cm
(b) 32 cm
(c) 8 cm
(d) 16 cm
```

15. What is the value of $98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + \ldots\ldots 12^2 - 11^2$?

$98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + \ldots\ldots 12^2 - 11^2$ ˙˜ देगॉ चें (ख

SSC CHSL 21/03/2023 (Shift- 02)

(a) 4926 (b) 4851
(c) 4725 (d) 4796

16. Which of the following statement is true?

काश्गाक के ी दंह्रअंह ` गॉ अें ˙ रेुगॉ अव्हं (ख

I. $\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \ldots\ldots \frac{1}{110} < \frac{5}{6}$

II. $\frac{1}{3} + \frac{1}{15} + \frac{1}{35} + \ldots\ldots \frac{1}{143} > \frac{7}{13}$

SSC CHSL 20/03/2023 (Shift- 02)

(a) Only I/ ह्रटॅ I
(b) Both I and II/I कृ ि II ` हे ह्र
(c) Only II/ ह्रटॅ II
(d) Neither I nor II/गॉ ी हा कृ ि गॉ (˜ II

17. If $x^2 + y^2 + z^2 = xy + yz + zx$ and $x = 1$, then find the value of $\frac{10x^4 + 5y^4 + 7z^4}{13x^2y^2 + 6y^2z^2 + 3z^2x^2}$

चकॅ $x^2 + y^2 + z^2 = xy + yz + zx$ कृ ि $x = 1$ (ल ी हें $\frac{10x^4 + 5y^4 + 7z^4}{13x^2y^2 + 6y^2z^2 + 3z^2x^2}$ ˙˜ देगॉ छेीॅ ˙ ` व्स्ज़

SSC CGL 05/12/2022 (Shift- 04)

(a) 2 (b) 0
(c) –1 (d) 1

18. Water in a canal 40 decimetre wide and 16 decimetre deep is flowing with a velocity of 15 km/h. How much area (in m^2) will it irrigate in 30 minutes if 12 cm of standing water is required for irrigation?

क्ष्वं त्ह्रर्द ि इे ह्ठे कृ ि तउें त्ह्रर्द ि)(ि रं ˜ ग(ि दंह्र% गॉ त? क दर्ष्र्ह्रज़ ˙ ` हसह्रं अंहल( ि( ˜ (ह्र चक्क काक्षे ।कं `हकर तु ˜ अहॅ ठ रंह्र% गॉ ˙ ˜ कृ सै चं ी ˜ (हें (ॉ ी हेचं(ब्वं क्ष्गू ˜ दंह्रक ी गंह-हेंॅ. दं˜ दंहॅ ˙ ˜ काक्षे ।क ˙ हेि ख

CRPF HCM 24/02/2023 (Shift - 02)

(a) 2,40,000 (b) 3,20,000
(c) 4,80,000 (d) 4,00,000

19. Two circles touch each other externally. The radius of the first circle with centre A is18cm. The radius of the second circle with centre B is 8cm.Find the length of their common tangent CD.

`हसत्रें रं ˜ अहि `हले ढ ८ % अंह8%` कं ि ी ह( ह्र ˙ ह˛ A से टे ह%( टेहसत्रें ˙ ˜ केन्चें 18 cm (ह्र ह˛ B से टेह अहिसत्रें ˙ ˜ केन्चें 8 cm (ह्र1गं ˜ 1˛ चक्का:ध 8%` ह्रिहें ˜ CD ˙ ˜ ट से ।कछे ी ˙ ` व्स्ज़

SSC CPO 11/09/2022 (Shift - 01)

(a) 23 cm (b) 26 cm
(c) 24 cm (d) 25 cm

20. X can do a certain work in 30 days. Y is 20% more efficient than X, and Z is 25% less efficient than Y. Y and Z together completed 35% of the work. X alone completed the remaining work. In how many days was the entire work completed?

X रं ˜ काकेइ ी ˙ ` चंक `हबवं कगें ह्रदंह्र ि अं ी ˜ (ह्रY, X अंह वट कृक्ष ˜ ˙ ˙0 टॅ (लि कृ ि Z, Y अंह ?ध्‍ ˙ द ˙ ˙0 टॅ (ह्र Y कृ ि Z गहक्शट ि ब?ध ˙ ` चंक%ि ˙ क चेज़ X कृ हहे हें ˙ ` चंक `ह%ि ˙ ि ि ˜ (ह्र%ि ˙ `दें क ी गह कगें ह्रदंह्र%ि (कृ ख

CRPF HCM 26/02/2023 (Shift - 01)

(a) $24\frac{1}{2}$ (b) 30
(c) 25 (d) $22\frac{1}{2}$

21. If $x = \sqrt{31 + 2\sqrt{30}} - \sqrt{31 - 2\sqrt{30}}$, then what is the value of x?

चकॅ $x = \sqrt{31 + 2\sqrt{30}} - \sqrt{31 - 2\sqrt{30}}$ ी ह x ˙ ` देगॉ चें (ख

CRPF HCM 22/02/2023 (Shift - 02)

(a) 2 (b) $2\sqrt{2}$
(c) $2\sqrt{15}$ (d) 4

22. If $3^x = 9^y = 27^z$ and $\frac{1}{3x} + \frac{1}{6y} + \frac{1}{9z} = \frac{32}{3}$, find z.

चकॅ $3^x = 9^y = 27^z$ ˜ कृ ि $\frac{1}{3x} + \frac{1}{6y} + \frac{1}{9z} = \frac{32}{3}$ (ल ी हट छेीॅ ˙ ` व्स्ज़

CRPF HCM 01/03/2023 (Shift - 01)

(a) $\frac{1}{5}$ (b) $\frac{5}{8}$
(c) $\frac{1}{32}$ (d) $\frac{8}{5}$

23. **A semi-vertical angle of a right circular cone is 60°, and its slant height is √3 cm. Find the ratio of the height of cone and radius of the base of cone?**

सं ˘ टश्रूँ सत्रें चे ̀ मॅ0 ̀ ˘ कृभ्क ज्सेभ्र्ग ̀ ̀ हेंा उवर्ॅ (त्ल कृे ि ।अं ˘ केि4 ˘ ˃ इे ।कं√बं अर्हॅ (ह्मॅ ̀ मॅ0 ˘ ˃ ह्मे ।व कृे ि ̀ मॅ0 ˘हकृे भ ि ˘ कंन्चें ̀ ˘ कृगक्ेि छेि ̀ ̀ कृद्चह्म

CRPF HCM 01/03/2023 (Shift - 02)

(a) √3 : 1
(b) 1 : √3
(c) 2 : √3
(d) 3 : 2

24. **Three partners, A, B and C, started a business by investing Rs.48,000 each. After 5 months, A left the business; after 9 months, B left the business; and after 12 months, C left the business. If the total earned profit is Rs.5,850, then the share of C is what percentage more than that of B?**

ि गॅ अॅ हे िह्मA ल्B कृे ि C गॅह६द्धह ˘ क्ष्स्त्त्वं ़ %चह ̀ ˘ कासेहें ̀ ि ˘हस ˘ श्रमसअेचें ̀ ए ˘ क चेंज्ञ? द(गॅहले ल A ˘ गॅहश्रमसअेचें 4 ह्ॅ०कचेंद्रें यें द(गॅहले ल B गॅहश्रमसअेचें 4 हॅ०कचेंद्रें कृे ि तु ˘ द(गेंह्म ˘हले ल C गॅहश्रमसअेचें 4 हॅ० कचेंज्ञ चकं ̀ ए ˘ कृक्ष्मि ट ़ ˘ ?त्व ?वं ़ %चंह(र्ली ˘हC ̀ ̀ कृ8ॅअें B अॅहक ि गॅह६कें ि ि ˘ कृक ˘ (ख

CRPF HCM 28/02/2023 (Shift - 01)

(a) 43% (b) 37%
(c) $33\frac{1}{3}\%$ (d) $39\frac{1}{3}\%$

25. **The average of four consecutive odd numbers is 21 more than one-third of the smallest among them. What is the average of the first and fourth numbers?**

इे ि क्रदे ि ˘ कृ:दं असचेकृेह्म ˘ ˘ कृे छ्भि ˘ 1गदॅह्मअॅहअल्अह 4 हूॅ असचें ̀ ˘हस ˘ कॅ(।कॅ्हु तं कृक ˘ (ह्म%(ट ˘ कृे ि इे हॅि असचें ̀ ˘ ˘ कृे छ्भि ़ चें (ख

CRPF HCM 28/02/2023 (Shift - 03)

(a) 26 (b) 30
(c) 3 (d) 28

ANSWER KEY

1.(d)	2.(a)	3.(b)	4.(d)	5.(b)	6.(b)	7.(d)	8.(c)	9.(c)	10.(b)
11.(c)	12.(a)	13.(b)	14.(a)	15.(d)	16.(d)	17.(d)	18.(d)	19.(c)	20.(a)
21.(a)	22.(c)	23.(b)	24.(c)	25.(b)					

SOLUTIONS

1. (d) By digital sum:-

$$x \times \frac{112}{100} \times \frac{88}{100} = 295680$$

$$x = \frac{295680 \times 10000}{112 \times 88} = \frac{3}{1}$$

Digital sum = 3

(a) 313000 → 7 (b) 320000 → 5

(c) 280000 → 1 (d) 300000 → 3

2. (a) $\underbrace{650 \times \frac{92}{100} \times \frac{88}{100}}_{\text{S·P}} \times \frac{100}{160} = \text{C·P}$

then, C.P = Rs.328.9

(For easy calculation check multiple of 11, 13, 23)

3. (b) Area of Triangle $= \sqrt{15 \times 6 \times 6 \times 3} = 18\sqrt{5}$

Circumradius $= \frac{abc}{4\Delta}$

$$R = \frac{12 \times 9 \times 9}{4 \times 18\sqrt{5}} = \frac{27}{2\sqrt{5}} = \frac{27\sqrt{5}}{10}$$

4. (d) $720 = 9 \times 8 \times 10$

$\downarrow \quad \downarrow \quad \downarrow$

$3^2 \quad 2^3 \quad 2 \times 5$

$2^4 \times 3^2 \times 5^1$

Total factors = 5 × 3 × 2 = 30

after exclude 1, 720 Total factors = 28

5. (b) For divisiblity rule 4 we can take b = 2, 4, 6, 8 but we take maximum value. So we go with 8.

Divisibility rule of 9 = 1a975980

a + 3

↓

6 + 3 = 9

a = 6, b = 8

Hence, 7a + 3b = 7 × 6 + 3 × 8 = 66

6. (b) 10a82b → 112 = 7 × 16

By options:-

(a) 30 (b) 12 (c) 24 (d) 18

6 × 5 3 × 4 8 × 3 9 × 2

Because of 16 we can check multiple of 4.

10a82b

↓ ↓

3 4

12 is multiple of 4 and whole number divided by 7.

then, option (b)

7. (d) C·P $100x$ → −5 → $(100x - 5)$ S·P $90x$ → +8 → $(90x + 8)$

$$\frac{(100x - 5)}{100} \times 110 = (90x + 8)$$

$1100x - 55 = 900x + 80$

$200x = 135$

$$x = \frac{135}{200}$$

Original S.P $= 90 \times \frac{135}{200} = \text{Rs.}60.75$

Alternate Method:-

C·P S·P

10 — 9

10 — 11

−5 +8

110 − 90 unit = 80 − (−55)

20 unit = 135

1 unit $= \frac{135}{20}$

9 unit $= \frac{135}{20} \times 9 = \text{Rs.}60.75$

8. (c) Rate = 30% (I[st] year)
= 40% (II[nd] year)

By successive:-

C·I = 82%

$$\frac{4500}{100\%} \times 82\% = \text{Rs.}3690$$

9. (c) $\frac{\text{Difference of both speed}}{\text{Speed of without stoppages}} \times \text{per hour}$ (in minute)

$$\frac{(90 - 75)}{90} \times 60$$

$$\frac{15}{90} \times 60 = 10 \text{ minute}$$

10. (b) (I) Meet each other at 5 : 36

Distance = 70 × 4 = 280 km

Relative speed = 50 km/h

Time $= \frac{280}{50} = 5\frac{3}{5}\text{hr}$ $\boxed{\frac{3}{5} \times 60 = 36 \text{ minute}}$

= 5 : 36 (Statement correct)

(II) Distance covered by Neeraj = 120 × 4 = 480

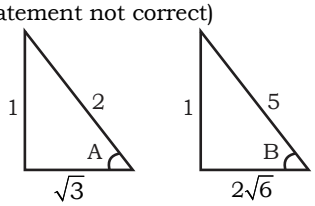
Distance covered by Vivek = 70 × 8 = 560

Total distance covered by Neeraj and Vivek

= 480 + 560 = 1040

(Statement not correct)

11. (c)

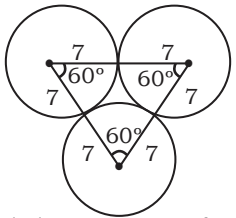


cos(A − B) = cosA cosB + sinA sinB

$$\frac{-\sqrt{3}}{2} \times \frac{-2\sqrt{6}}{5} + \frac{1}{2} \times \frac{1}{5}$$

$$\frac{3\sqrt{2}}{5} + \frac{1}{10} \Rightarrow \frac{6\sqrt{2} + 1}{10}$$

12. (a)



Shaded area = Area of equilateral − Area of semicricle

$$= \frac{\sqrt{3}}{4} \times 14 \times 14 - \frac{22 \times 7 \times 7}{7 \times 2}$$

$= 49\sqrt{3} - 77\text{cm}^2$

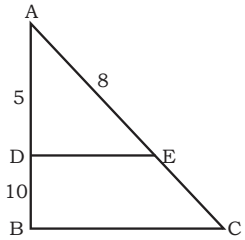
13. (b) Spirit 40% Water 60%

Replaced part $= \frac{5}{50} = -\frac{1}{10}$

$60\% \times \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10} = 44.74\%$

Nearest = 44%

14. (a)



By similarity, DE ∥ BC

then, $\Delta ADE \cong \Delta ABC$

$\frac{AD}{AB} = \frac{AE}{AC}$

$\frac{5}{15} = \frac{8}{AC}$

$AC = \frac{8 \times 15}{5} = 24$

15. (d) $98^2 - 97^2 + 96^2 - 95^2 + 94^2 - 93^2 + ... + 12^2 - 11^2 = ?$

$(a^2 - b^2) + (a^2 - b^2)$ .....

$(a + b)(a - b)$ .....

$1 \times 195 + 1 \times 191 + 1 \times 187 + ... + 1 \times 23$

$195 + 191 + 187 + ... + 23$

$n = \frac{(l - a)}{d} + 1$

$n = \frac{23 - 95}{4} + 1 = 44$

$S_n = \frac{n}{2}(a + l)$

$S_n = \frac{44}{2}(195 + 23)$

$S^n = 4796$

16. (d) (I) $\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + ...\frac{1}{110} < \frac{5}{6}$

$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + ... + \frac{1}{10 \times 11}$

$\frac{1}{\text{difference}}$ [1st – last]

$\frac{1}{1}\left[\frac{1}{1} - \frac{1}{11}\right]$

$\frac{1}{1} \times \frac{10}{11} = \frac{10}{11} < \frac{5}{6}$ Wrong statement

(II) $\frac{1}{3} + \frac{1}{15} + \frac{1}{35} + ...\frac{1}{143} > \frac{7}{13}$

$\frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + ...\frac{1}{11 \times 13}$

$\frac{1}{\text{diff}}$ [frist – last]

$\frac{1}{2}\left[\frac{1}{1} - \frac{1}{13}\right]$

$\frac{1}{2} \times \frac{12}{13} = \frac{6}{13} > \frac{7}{13}$ Wrong statement.

So, we can say neither I nor II true.

17. (d) Concept:-

If $x^2 + y^2 + z^2 = xy + yz + zx$

then, $x = y = z$

Here, $x = 1$ then $y = 1$, $z = 1$

So, $\frac{10x^4 + 5y^4 + 7z^4}{13x^2y^2 + 6y^2z^2 + 3z^2x^2}$

$\frac{10 + 5 + 7}{13 + 6 + 3} = \frac{22}{22} = 1$

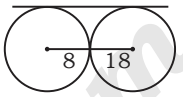
18. (d) 15 km = 1500000 decimeter = length

Volume of canal = 40 × 16 × 150000 dm^3

Water is required for irrigation in 30 minutes

$= \frac{40 \times 16 \times 150000 \times 1}{12} \times \frac{1}{2} = 4,\ 00,\ 000$

19. (c)



Direct common tangent $= 2\sqrt{r_1 \times r_2}$

$= 2\sqrt{8 \times 18}$

$= 2 \times 12 = 24$

Alternate Method:-

DCT $= \sqrt{(d)^2 - (r_1 - r_2)^2}$

$= \sqrt{(26)^2 - (10)^2} = \sqrt{676 - 100} = \sqrt{576} = 24$

20. (a)

x	y	z
5	: 6	
	4	: 3
20	: 24	: 18

Effi → 10 : 12 : 9

Total work = 30 × 10 = 300

Total time $= \frac{300 \times \frac{35}{100}}{21} + \frac{300 \times \frac{65}{100}}{10}$

$= 5 + \frac{39}{2} \Rightarrow 5 + 19\frac{1}{2} = 24\frac{1}{2}$ days

21. (a) Concept:- $x = \sqrt{7 + 2\sqrt{10}}$

↓

When here given 2

5 + 2 = 7

5 × 2 = 10 so, $\sqrt{5} + \sqrt{2}$

According to question

$x = \sqrt{31 + 2\sqrt{30}} - \sqrt{31 - 2\sqrt{30}}$

↓ ↓

30 + 1 = 31 30 + 1 = 31

30 × 1 = 30 30 × 1 = 30

so, $\sqrt{30} + \sqrt{1}$ so, $\sqrt{30} - \sqrt{1}$

Hence, $\left(\sqrt{30} + \sqrt{1}\right) - \left(\sqrt{30} - \sqrt{1}\right)$

$\sqrt{30} + 1 - \sqrt{30} + 1 = 2$

22. (c) If base are equal then powers also are equal.

$x = 2y = 3z$

$x \quad y \quad z$

$6 : 3 : 2$

$$\frac{1}{3x}+\frac{1}{6y}+\frac{1}{9z}=\frac{32}{3}$$

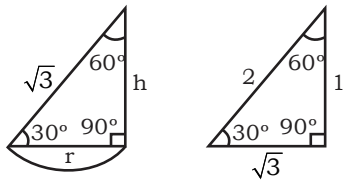
$$\frac{1}{18k}+\frac{1}{18k}+\frac{1}{18k}=\frac{32}{3}$$

$$\frac{3}{18k}=\frac{32}{3}$$

$$k=\frac{1}{64}$$

Then, $z = 2k = 2\times\frac{1}{64}=\frac{1}{32}$

23. (b) By triangle 30, 60, 90



2 unit = $\sqrt{3}$

1 unit = $\frac{\sqrt{3}}{2}$

$\sqrt{3}$ unit = $\frac{\sqrt{3}}{2}\times\sqrt{3}$

Hence, Height : Radius

$$\frac{\sqrt{3}}{2} : \frac{\sqrt{3}\times\sqrt{3}}{2}$$

$1 : \sqrt{3}$

Alternate Method:-

$\tan 60^\circ = \frac{r}{h}$

$\sqrt{3} = \frac{r}{h}$

Hence, $h : r = 1 : \sqrt{3}$

24. (c) If investment are equal then,
Time Ratio = Profit Ratio

A : B : C

5 : 9 : 12

Extra = 3

So, $\frac{3}{9}\times 100\% = 33\frac{1}{3}\%$

25. (b) n n+2 n+4 n + 6

Avg = n+3

$n+3 = 21 + \frac{1}{3}\times n$

Both side multiply by 3.

$3n + 9 = 63 + n$

$2n = 54$

$n = 27$

Avg of Ist and IVth number

$= \frac{n+n+6}{2} = \frac{2n+6}{2}$

$= n + 3 = 27 + 3 = 30$

1. If the 4-digit number 48ab is divisible by 2, 5 and 7, then what is the value of (10a – b)?

 ´ क्कै ˘ f ke ˘ hd la ए़मं ˘ 48ab, 2, 5 f कै7 ए़हकचे त (ŭ 8 े़h(10a – b) द ˘ ˘ ` सं नं ˘ (म

SSC CHSL 15/03/2023 (Shift- 02)

(a) 10 (b) 20
(c) 30 (d) 0

2. The average age of 120 members of a society is 62.5 years. By addition of 30 new members, the average age becomes 58.2 years. What is the average age of newly joined members?

स्द ˘ ए़ हे़ ेi ज़्लंद हजा क्रुं ए क ेंहद लॅ f ए़ं8 f ˘ ˘ य?। ड़ र वेंध(ŭ, न्कृं सं ˘ ए क ेंहद ं ह8 ˘ कंट ˘ द अंह0अंf ए़8 f ˘ यम़23 ˘ र वेंध(ंह5 8 लं(ŭ, सं ˘ 8 ˘ कंट ˘ (सं ए क ेंम द लॅ f ए़ं8 f ˘ ˘ यक्ष8 सं(म

SSC CHSL 15/03/2023 (Shift- 01)

(a) 42 years (b) 40 years
(c) 39 years (d) 41 years

3. The slant height and the radius of a right circular cone are 11 cm and 6 cm, respectively. What is the curved surface area of the cone?

स्द ˘ टम्र 4 लं ˘ 8 बॅयद लंक ˘ द ˘ ल्जे ˘ ध्जजं एंहलॅ f अंकेतं ? एंहलं(ŭ, 8 बॅयदं ˘ र क्रं ˘ 0कलं ˘ प्रेह0ष्ट ˘ क्ष8 सें ˘ (म

SSC MTS 12/07/2022 (Shift- 02)

(a) 74π cm² (b) 60π cm²
(c) 44π cm² (d) 66π cm²

4. What is the difference between simple interest and compound interest on Rs. 10,000 for two years at 20% per annum compounded half - yearly?

ज्कुक्कुं70 ˘ ह0अं ˘ हए ेट ˘ दंहक सं ।क्रु ˘ रखक ˘ र वेंध ˘ रखरे केाद ० ०़ ˘ एंहएमे ह्ह5 8 ˘ ए खे अं ˘ ˘ शं ˘ 5 ˘ f ˘ कं इ क्रर क्षम ˘ शं ˘ 5 ˘ दंह%ल् ˘ नं ˘ ˘ f म्क अं(म

UPSC CDS 16/4/2023

(a) Rs.842 (b) Rs.756
(c) Rs.641 (d) Rs.542

5. In an election, a candidate secures 42% of the votes polled but is defeated by his only opponent by a majority of 3080 votes, because of 1400 invalid votes. The percentage of invalid votes is ______.

स्द ˘ इ सेर ˘ ं ह्म स्द ˘ 3$ लर अंदं ेंह ए ˘ टं ह)सं ˘ ˘ 8 ेंहद ˘ । ˘ ˘ ० :8 ˘ (हें ˘ (ŭ 0अंयंज कृक्ं f राहे ˘ ˘ 8 ेंहद ंहद अं f ०सं ंहस्द ˘ ˘ ˘ ˘ ० क्ड बंलडे अं ़ कृकुं ˘ 8 ेंहद ंह%(यं8 ˘ एह (अं5 8 ˘ (ŭ f राहे ˘ 8 ेंहद ˘ 0क्ष8 8 ˘ (ŭ

SSC CPO 10/11/2022 (Shift- 01)

(a) 5% (b) 3%
(c) 4% (d) 6%

6. The marked price of a trouser is four time the cost price. To earn 64% profit, what should be the discount percentage?

स्द ˘ 05 ˘ ˘ हद ˘ f म्ह8 ˘ .6 ˘ क्रं ˘ ˘ .6 ˘ द ˘ इ अं)से (ŭ ? ˘ ट चें f क8 ˘ द अंहद ंहक सं ˘ ६ ज़ं 0क्ष8 8 ˘ क्ष8 से (हें इ क्रुस्प

SSC CHSL 15/03/2023 (Shift- 02)

(a) 59% (b) 55%
(c) 62% (d) 65%

7. The speed of a boat in still water is 15 km/h. If it can travel 42 km downstream and 28 km upstream in the same time, then what is the speed of the stream?

क्रूअं5ट ˘ ˘ ह्मस्द ˘ से र ˘ दं लं)कें ˘ जं ˘ क्ं ˘ त्ख9 में ˘ (ŭ ´ क्कै ˘ र(ए़ ˘ सं ए ˘ ˘ ˘ हि ।ं क्ं ˘ लखे अं दं ह f सव़ ट f कं।2 ˘ क्ं ˘ लखे अं दं हक्ष्द ट ˘ ˘ ˘ ी ˘ द अंएद 8 लं(ŭ 8 ेंह खे अं दं लं)कें ˘ नं ˘ ˘ (म

UPSC CDS 16/4/2023

(a) 2.5 km/hr (b) 3 km/hr
(c) 4.5 km/hr (d) 6 km/hr

8. Each side of a square is 12 cm long. The perimeter of this square is equal to the perimeter of a rectangle whose length is 16 cm. What will be the area of this rectangle?

स्द ˘ र)ध्द लं0रुंह ˘ चहे ˘ जां एं हलंटम्लं(ŭ, ी ए ˘ र)ध्द 0क्के ० ˘ स्द ˘ f ˘ 8 ˘ दंह%अं%अं(ाकएद लं टम्रे ध्जं? एं हल (ŭ, ी ए ˘ f ˘ 8 ˘ द ˘ प्रेह0ष्ट ˘ क्ष8 सें ˘ (हेप

SSC MTS 12/07/2022 (Shift- 02)

(a) 128 cm² (b) 112 cm²
(c) 184 cm² (d) 156 cm²

9. If 3 is added to two numbers, the ratio is 4 : 5 and if the same number is subtracted from the two numbers, the ratio is 1 : 2. The numbers are:

´ कॅ `हएमं` र्िहॅ क्ि ॅ 5 हॅ6 5 ॅ (ॅ ॅ हॅर्ि सिघे ॅ ॅ ॅ (ि हॅ`(ॉ र्ि अॅ कॅ `हएमं` र्िहॅ म्हऍ हर(ॅ लॅएमं` 9ज्ञे` लॅ 5 ॅलॅ(ॅ ॅ हॅर्ि सिघे ॅ ज्ॅ ॅ ॅ (ि हॅ` (ॅ, रह एमं` स्मदे म्तएलॅ(म

DP Head Constable 19/10/2022 (Shift - 02)

(a) 5 and 7 (b) 1 and 2
(c) 7 and 5 (d) 4 and 5

10. A train crosses two persons travelling at 4 km/h and 6 km/h in the same direction in 12sec and 14 sec, respectively. The speed of the train is ________.

स्दॅ ज्ञक्ॅ 3एॅलॅक 8ॅ``ॅ ह 4 km/h र्ि अॅ 6 km/h दल इॅ टॅ एॅहइ टॅ अॅह ` हॅर्ि कार्ि ` ॅहदे हर्क 8ॅ 12 sec र्ि अॅ 14 sec ` ॅ ह0 अॅदअॅ5 ॅलॅ(ॅ, ज्ञक्ॅ दलॅइ टॅ - ॅ दलक र,

SSC CPO 11/09/2022 (Shift - 02)

(a) 18 km/h (b) 26 km/h
(c) 20 km/h (d) 24 km/h

11. In a trapezium, the sum and difference between the parallel sides are 15 cm and 3 cm and those between the non-parallel sides are 4 cm and 5 cm, respectively. Find its area.

स्दॅ एॅ टम्ॅ `ुॅ हॅ एॅ` म्अॅचे र्ि हदॅ ह%ज्ञॅ दॅ``हॅ र्ि अॅ र्ि अॅजॅ एॅहलॅ र्ि अॅ एॅहलॅ(ॅ र्ि अॅ एॅ` म्अॅचे र्ि हद ह %ज्ञॅ दॅ र्ि अॅर्क 8ॅ``ॅ एॅहलॅ र्ि अॅ मॅ एॅहलॅ(ॅ, ोएदे प्रेहे0ष्टॅ - ॅ दलक र,

CRPF HCM 23/02/2023 (Shift - 01)

(a) 32 cm^2 (b) 30 cm^2
(c) 25 cm^2 (d) 35 cm^2

12. 6 pipes, working 10 hours a day, can empty a cistern in 3 days. How many hours a day must 9 pipes work to empty the cistern in one day?

? 0ॅ0ॅ कसॅ ` ॅहज्ञ 9 हॅहदे`` दअॅह(ॅ स्ुॅ स्दॅ ज्ञल देहॅ कसॅ ` ॅहगे टॅलदअॅएद ॅह(ॅ स्दॅ कसॅ ` ॅहज्ञल दे हगे टॅलदअॅह दहक सॅ `` 0ॅ0ॅ हदे हक ॅहॅ9 ह दॅ `दअॅ(हेप

DP Head Constable 17/10/2022 (Shift - 01)

(a) 18 (b) 20
(c) 12 (d) 22

13. A person spends 40% of his monthly income. The monthly income of the person is increased by 15% and his expenditure is decreased by 22%. What is the approximate percentage increase in his savings?

स्दॅ ॅ कार्ि 0र्लि `ह्द ॅ र्ि ``दे`` कृॅ गेइॅ ध्द अॅ (ॅ, ॅ कार्ि दर्लि `ह्द र्ि ```हजरू दलॅरक (हॅलॅ(ॅ र्ि अॅ 3एदॅ हॅ```ॅ ह।।रू दलॅदॅ लॅ(हॅलॅ(ॅ, 3एदलॅ%इॅ `ह ट)ेचा) 0क 8ॅ रकॅ क ॅलॅ(म

SSC MTS 05/07/2022 (Shift- 03)

(a) 40% (b) 44%
(c) 32% (d) 36%

14. The HCF and the LCM of two numbers are 5 and 120, respectively. If the sum of the two numbers is 55, then the sum of the reciprocals of these two numbers is equal to:

`हएमं` र्ि हदे`` (``` एॅ` 0रॅ ष्ठॅ (HCF) 5 र्ि अॅट9ॅ एॅ` 0रॅुॅ (LCM) जाकॅ(ॅ, ´ कॅ ीसॅ ` हॅहएमं` र्ि हदे ` हॅ मॅ (ॅ ॅ हीस्दॅ हॅ र्क ` हदे `` हॅ - ॅ दलक र,

SSC MTS 05/07/2022 (Shift- 03)

(a) $\frac{55}{601}$ (b) $\frac{11}{120}$
(c) $\frac{120}{11}$ (d) $\frac{601}{55}$

15. The compound interest on Rs.18,000 at 7% per annum, compounded annually, is Rs.1,260. What is the period of time?

ॅ 5ॅ रेक ॅ ॅ ॅ0ॅ ` ह एमं हक ॅ (हॅ 0अॅ 0ॅ हज्ञ कृक्ॅ दल अक्ॅ 0अॅ ण्रू दलॅ रेकॅ अॅ एॅह0 :ॅ इक्र कॅ ॅ 5 ॅ0ॅ ह ज ?कॅ(ॅ, एॅ `` र्ि रकॅ - ॅ दलक र,

SSC MTS 25/07/2022 (Shift- 03)

(a) 1 years (b) 2 years
(c) 3 years (d) 4 years

16. In a business dealing, A owes B Rs.20,000 payable after 5 years, whereas B owes A Rs. 12,000 payable after 4 years. They want to settle it now at the rate of 5% simple interest. Who gives how much money in this settlement?

स्द ॅ न्ॅ 0 कक्ष ॅ टह्रं ॅ ह्रं ॅ ह्र A सह्र B दॅ ह। कृकृक्क ० 0 ॅह ह्रह(ा 5 ॅहॅ रवेंध% ॅ करॅ 5 सह्र(ा ि ह्रB सह्रA दॅहजा, कृक्क ० 0 ॅ ह ह्रह(ा 5 ॅहॅ रवेंध% ॅ करॅ 5 सह्र(ा ि % रॅहीएॅहम्ॅ दलॅ अएॅहए खेअॅ शॅ 5 0अॅ इवथे दअॅ इ (थॅह(ा ीएॅ कव0ज्ञे अॅह्रदे ह्र क्ष थॅ 0एॅ ह्रे प

UPSC CDS 16/4/2023

(a) Both are at par

(b) B gives Rs.6,000 to A

(c) A gives Rs.6,000 to B

(d) A gives Rs.4,000 to B

17. S does half as much work as T in $\frac{1}{8}$ of the time taken by T. If they together complete a work in 60 days, then how many days shall S alone take to complete that work?

T डेअॅ कवॅ)ॅ एॅ ॅ ॅ दॅह $\frac{1}{8}$ ॅह्रS, T एॅहि खेॅ दॅ ॅ ६ दअॅ (ा, ॅ कॅ रॅहॅकटदअॅक्ष एॅलदे ॅध्दे ॅह?कृकसेह्र ह्र 0अॅ दअॅह(ह्र थेॅहS ि दह्रॅह3एॅलदे ॅध्दे ॅहक्ष थॅहकसेह्र ॅह्र0अॅ दअॅ प

SSC CHSL 09/03/2023 (Shift- 02)

(a) 100 days (b) 80 days

(c) 75 days (d) 90 days

18. There are 2800 students in a school, out of which 75% participate in a sports competition. Out of those who participate, 60% are boys. 35% of the boys and 25% of the girls qualify for the final round of the competition. What percentage of the school will participate in the final round?

स्दॅ क्ष्ट ॅ ॅह्र। 2कृक्ष ५ ॅ ा (ह्र कसॅ ह्रएॅहण्ॅ स्दॅ ठह खक्ष ॅ ह्र ६ ॅ ॅह्रचे) टह्रह(ह्र चे) टह्रहरे टॅह्र ॅह्रएॅह?कृ टएबॅह(ह्र ३ॅ टएबॅहि ह्र।म्ॅ टएक्ष ॅमखक्ष ॅ ह्र ६ दॅहि क्ष ॅ ॅह्रदॅहकॅ ि(थॅ खे:थॅ दअॅह(ह्र 0धीसट अउमॅ ॅह्रक्ष्टॅ दॅहक्ष थॅहखक्ष ८ थॅ ५ ॅ ा चे) टह्रह

CRPF HCM 11/03/2023 (Shift - 01)

(a) $22\frac{1}{2}\%$ (b) $21\frac{3}{4}\%$

(c) $20\frac{1}{3}\%$ (d) $23\frac{1}{4}\%$

19. A and B entered into a partnership with their capitals in the ratio $\frac{2}{3}:\frac{5}{9}$. A being a working partner received 34% of the annual, profit for his serviced. If B received ₹15 lakh as his share out of the annul profit, the total amount (in ₹ lakh) received by A in the annual profit was:

A ि ह्रB सह्रि 0सॅल0बलॅ $\frac{2}{3}:\frac{5}{9}$ दॅहि सअे थॅ ॅ ह्रस्द ऐ ऊहे अॅदलॅ स्दॅ दॅ ॅ अॅ चे)लेअ(ह्रहदॅहसेथॅहA सह्र ि 0सॅलएहॅ दॅहकॅ रेकव टेचॅ दॅ ॅ ै ॅ खे:थॅ क्ष ॅ , ॅ कॅ B दॅहरे कव टेचॅ ॅह्रएॅहि 0सॅहकक्ष्हदॅह० 0ॅ ह्र जॅ टेठॅ 70 ॅहखे:थॅ (ह्रह(ह्र थॅहरे कव टेचॅ ॅह्रA डेअ खे:थॅ दथॅ अक्षेॅ ३टेठॅ 70 ॅहॅ ह्र रेल्ल

CRPF HCM 22/02/2023 (Shift - 02)

(a) 35 (b) 32

(c) 30 (d) 36

20. A smaller circle touches a bigger circle internally and also passes through the center 'O' of the bigger circle. If the area of the smaller circle is 192 cm², the area of the bigger circle (in cm²) is:

स्दॅ ५ ह्रॅ र्‌ॅ स्दॅ %ॅहर्‌ॅ दॅहि मक्क ॅ ० 0 ॅ एॅहक्क8 ६ दअॅ (ाि ह्र%ॅहर्‌ॅ दॅहदॅह 'O' एॅहचेलॅ)ह्रअॅ (ा, ॅ कॅ ५ ह्रहर्‌ॅ दॅ प्रेह0थ्ॅ जॅ ा ॅ लअॅ (ॅ थॅह%ॅहर्‌ दॅ प्रेह0थ्ॅ ३ॅ लअॅ ॅ ह्र - थॅ दक्रस,

SSC MTS 05/07/2022 (Shift- 03)

(a) 768 (b) 384

(c) 1024 (d) 720

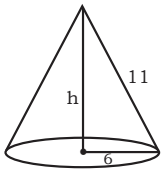
ANSWER KEY

1.(c)	2.(d)	3.(d)	4.(c)	5.(a)	6.(a)	7.(b)	8.(a)	9.(a)	10.(a)
11.(b)	12.(b)	13.(a)	14.(b)	15.(a)	16.(c)	17.(c)	18.(d)	19.(a)	20.(a)

SOLUTIONS

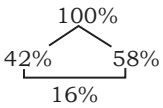
1. (c) L.C.M of (2, 5, 7) = 70
Check for 10 ⇒ For completely divided by 10. unit digit will be 0.
So, 48 a b
↓
0
Check for 7 ⇒ a = 3
$7\overline{)48}(6$
$\frac{42}{6}$
When we take a = 3 then 63 will be divided by 7.
Hence, (10a – b)
30 – 0 = 30

2. (d) 62·5 — x
58·2
4·3
120 — 30
4 : 1
1 unit = 4·3
4 unit = 4·3 × 4 = 17·2
x = 58.2 – 17.2 = 41 years

3. (d)


CSA of cone = πrl
= π× 6 × 11 = 66πcm²

4. (c) (12 month)
Per annum rate = 20%
Half yearly rate = $\frac{20\%}{12} \times 6 = 10\%$
(6 month)
S.I of 2 year at half yearly rate 10% = 10 × 4 = 40%
C.I of 2 year at half yearly rate 10% = 46.41%
Difference = 46.41% – 40% = 6.41%
C.I – S.I = $10000 \times \frac{6{\cdot}41}{100}$ = Rs.641

5. (a)


16% = (1400 + 3080) = 4480
then, $\frac{16}{4480} \times 1400 = 5\%$

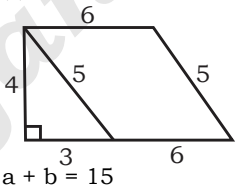
6. (a) $\frac{MP}{CP} = \frac{100 \pm P/L\%}{100 - D\%}$
$\frac{4}{1} = \frac{164}{100 - x}$
100 – x = 41
x = 59%

7. (b) When time is constant speed ∝ Distance
D : U
D/S → 3 : 2
Speed of boat = $\frac{3+2}{2} = \frac{5}{2}$ = 2.5 unit
Speed of stream = $\frac{3-2}{2} = \frac{1}{2}$ = 0.5 unit
2.5 unit = 15 km/hr
1 unit = $\frac{15}{2.5}$ km/hr
0.5 unit = $\frac{15}{2.5} \times 0.5 = 3\,km/hr$

8. (a) Perimeter of square = perimeter of rectangle
4a = 2 (l + b)
2a = (l + b)
24 = 16 + b
b = 8
Area of rectangle = l × b = 16 × 8 = 128 cm²

9. (a) 3(1 : 2
3(x : y] 3 unit
(4 : 5
3 unit = 6
1 unit = 2
So, $x = 5 \overset{+3}{\underset{2}{}}$ $y = 7 \overset{+3}{\underset{4}{}}$

10. (a) In both case distance is length of Train.
Distance = $(x-4) \times \frac{5}{18} \times 12 = (x-6) \times \frac{5}{18} \times 14$
6x – 24 = 7x – 42
x = 18 km/h

11. (b)


a + b = 15
a – b = 3
a = 6, b = 9
Area = $\frac{1}{2} \times (6+9) \times 4$
= 15 × 2 = 30 cm²

12. (b) $\frac{M_1 D_1 H_1}{W_1} = \frac{M_2 D_2 H_2}{W_2}$
6 × 10 × 3 = 9 × x × 1
x = 20 hr

13. (a)

Income	=	Expenditure	+	Saving
100		40		60
+15% ↓		–22% ↓		+x% ↓
115		31.2		83.8

increase % = $\frac{83.8 - 60}{60} \times 100 = 39.6 = 40\%$(approx)

14. (b) H.C.F = 5, L.C.M. = 120 a + b = 55
a × b = H.C.F × L.C.M
= 5 × 120 = 600
then, $\frac{1}{a} + \frac{1}{b} = \frac{b+a}{ab}$
$= \frac{55}{600} = \frac{11}{120}$

15. (a) $18000 \times \frac{7}{100} = 1260$

So, we can say that period of time = 1 year.

16. (c) Principal of A = $\frac{20000}{125} \times 100 = 16000$

Principal of B = $\frac{12000}{120} \times 100 = 10000$

A gives Rs.6000 to B

17. (c) $\frac{M_1 D_1 H_1}{W_1} = \frac{M_2 D_2 H_2}{W_2}$

$\frac{1 \times S}{1} = \frac{8 \times T}{2}$

$\frac{S}{T} = \frac{4}{1}$ (Ratio of efficiency)

Total work = 60 × 5

S Alone compelte that work = $\frac{60 \times 5}{4}$ = 75 days

18. (d) Let, total students = 100
Participate students = 75

Boys in final round = $75 \times \frac{60}{100} \times \frac{35}{100} = \frac{63}{4}$

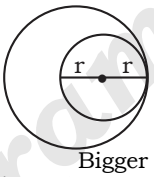
Girls in final round = $75 \times \frac{40}{100} \times \frac{25}{100} = \frac{15}{2}$

Total = $\frac{63}{4} + \frac{15}{2} = \frac{93}{4} = 23\frac{1}{2}\%$

19. (a) Total capital = 100
A received as a working partner = 34
A : B
6 : 5 (Profit Ratio)
11 unit = 66
1 unit = 6
5 unit = 30
6 unit = 36

So, A : B
36 30
34
70 : 30
7 : 3
5 × ↓ ↓ × 5
35 15

20. (a)



	Bigger	:	Smaller
Radius ⇒	2r	:	r
	2	:	1
Area ⇒	$(2)^2$	:	$(1)^2$
	4	:	1
	4 × ↓		↓ × 1
	192 × 4		192
	= 768		

1. If a + b + c = 6, (a² + b² + c²) = 14 and $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=\frac{11}{6}$, find abc.

यदि a + b + c = 6, (a² + b² + c²) = 14 और $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=\frac{11}{6}$, तो abc का मान ज्ञात करें।

CRPF HCM 23/02/2023 (Shift-03)

(a) 12
(b) 1
(c) 6
(d) 11

2. The price of rice increases from Rs.45 per kg to Rs.63 per kg. If its consumption is reduced by 20%, then by what percent does the expenditure on it increase?

चावल की कीमत 45 रुपये प्रति किग्रा से बढ़कर 63 रुपये प्रति किग्रा हो जाती है। यदि इसकी खपत में 20% की कमी हो जाती है, तो उस पर होने वाले व्यय में कितने प्रतिशत की वृद्धि होगी?

CRPF HCM 24/02/2023 (Shift-01)

(a) 10%
(b) 15%
(c) 12%
(d) 15%

3. The sum of money which when given on compound interest at 20% per annum would fetch Rs. 1205 more when the interest is payable half yearly than when it was payable annually for 2 years is:

वह धनराशि, जो 20% वार्षिक चक्रवृद्धि ब्याज पर दिए जाने पर 2 वर्षों के लिए वार्षिक रूप से देय ब्याज की तुलना में अर्धवार्षिक रूप से देय ब्याज पर 1205 रुपये अधिक प्राप्त करेगी, ज्ञात कीजिए।

CRPF HCM 27/02/2023 (Shift-01)

(a) Rs.42,000
(b) Rs.40,000
(c) Rs.45,000
(d) Rs.50,000

4. A train leaves Chennai at 5 pm, and reaches Coimbatore at 12 am. Another train leaves Coimbatore at 4 pm and reaches Chennai at 1 am. At what time will the trains cross each other, assuming they travel in the same route and at a constant speed?

एक ट्रेन चेन्नई से शाम 5 बजे चलती है, और रात 12 बजे कोयंबटूर पहुँचती है। एक अन्य ट्रेन कोयंबटूर से शाम 4 बजे चलती है और रात 1 बजे चेन्नई पहुँचती है। यह मानते हुए कि वे एक ही मार्ग पर और एक स्थिर चाल से यात्रा करती हैं, ट्रेनें किस समय एक दूसरे को पार करेंगी?

CRPF HCM 27/02/2023 (Shift-03)

(a) 8 : 05 p.m.
(b) 7 : 45 p.m.
(c) 7 : 30 p.m.
(d) 8 : 30 p.m.

5. Which of the following is equal to $\left[\frac{\tan\theta+\sec\theta-1}{\tan\theta-\sec\theta+1}\right]$?

निम्नलिखित में से कौन-सा $\left[\frac{\tan\theta+\sec\theta-1}{\tan\theta-\sec\theta+1}\right]$ के बराबर है?

(a) $\frac{1+\cos\theta}{\sin\theta}$
(b) $\frac{1+\sin\theta}{\cos\theta}$
(c) $\frac{1+\cot\theta}{\tan\theta}$
(d) $\frac{1+\tan\theta}{\cot\theta}$

6. Rohan scored twice as many marks in English as he did in Science. His total marks in English, Science and Mathematics are 126. If the ratio of his marks in English and Mathematics is 2 : 3, his marks in English are:

रोहन ने अंग्रेजी में विज्ञान की तुलना में दोगुने अंक प्राप्त किए। अंग्रेजी, विज्ञान और गणित में उसके कुल अंक 126 हैं। यदि अंग्रेजी और गणित में उसके अंकों का अनुपात 2 : 3 है, तो अंग्रेजी में उसके अंक हैं:

SSC CGL 06/12/2022 (Shift- 04)

(a) 63
(b) 20
(c) 21
(d) 42

7. If the seven-digit number 52A6B7C is divisible by 33, and A, B, C are primes, then the maximum value of 2A+3B+C is:

यदि सात अंकों की संख्या 52A6B7C, 33 से विभाज्य है, और A, B, C अभाज्य संख्याएँ हैं, तो 2A + 3B + C का अधिकतम मान है:

SSC CGL 12/12/2022 (Shift- 03)

(a) 32
(b) 27
(c) 23
(d) 34

8. If $\frac{4[(17)^3-(7)^3]}{(17^2+7^2+p)}=40$, then what is the vlaue of p?

यदि $\frac{4[(17)^3-(7)^3]}{(17^2+7^2+p)}=40$ है, तो p का मान क्या है?

SSC CGL 01/12/2022 (Shift- 01)

(a) –119
(b) 119
(c) –129
(d) 129

9. What is the value of tan240°?

tan240° का मान क्या है?

SSC CGL 01/12/2022 (Shift- 03)

(a) $\sqrt{2}$
(b) $\sqrt{3}$
(c) $(-)\sqrt{3}$
(d) 3

10. **Satish gives Manoj a headstart of 40 m in a race of 700 m. Satish runs at the speed of 9 km/h. If Satish managed to beat Manoj by 40 seconds, find the ratio of speeds of Satish and Manoj if they started the race at the same time.**

जओर्के ŏहसŏ हॅं र ॅह6,, सवर्क्ॅ र च ` ब्रेक्सहद, सवर्क्ॅ र च ।वृक्ष कटे उॅ जओर्के ॅ ँ क सवकेधि ॅ र च )क्ॅ जंह ` ब्रहें (ा ॅ कॅ जओर्के सŏ हॅ र ॅहद, जहरें जंह(ऐं ह्रें (ॅ8 ॲहजओर्के ले ऍ सŏ हॅ र च)क्ॅ र ॅ ल0ॅ ॲ गे ॲ र ज्ञार् ॅ कॅ क्ष(ॅ हह स्र ॅ (चजसं ॅ संहह ` ब्रके9 ॅ र च

CRPF HCM 23/02/2023 (Shift-03)

(a) 40 : 33
(b) 51 : 46
(c) 35 : 27
(d) 17 : 14

11. **P can do a piece of work in 10 days, Q in 15 days. They work for 5 days. The rest of the work was finished by R in 2 days. If they get Rs. 2700 for the whole work, the daily wages (in Rs.) of P and Q are**

P स्र ॅ र सॅ र ॅहर्फ, क0ॅ सॅहड़ी ऐं र ऍ जर ॲ (ॅ8 Q नि क0ॅ सुहॅ ॅहनॅ क0ॅ र सॅ र एॅह(मं । र चॅरे सॅ R ŏहॅ6 क0 सॅहड़ी ऐं र ऍ क्ॅ ॅ ल)ऍ क्ष(ॅहड़ी ऍहर सॅ र ॅहक्सॅ 26,, पी ॅहक्ाट ॲह(ॅह ॲह P ले ऍ Q र चॅ क्ष्र ॅ सत एॅचरुपी ॅह सहॅ. ॅॅ (ा

CRPF HCM 28/02/2023 (Shift-02)

(a) 180
(b) 270
(c) 900
(d) 450

12. **The interest calculated at a certain rate on a certain sum of money, x for 2nd year and 3rd year is Rs.770 and Rs.847, respectively. Find the sum of money x (in Rs.).**

स्र ॅ कक्8 ॲ ऐ कॅ x ी ऍ स्र ॅ कक8 ॲ ऍ ी ऍ): 0ॅ र च)उ क्रे त8 ज़ॉ्हॅ ड्रॅ ँ ले ऍ ॲ ज़ॉहॅ ड्रॅ ँ र ॅहक्सॅ 1 सडे ॅ 66, पी ॅह ले ऍ, द6ॅ पी ॅह(ॅ ल0ॅ र चॅ ऐ कॅ x रुपी ॅहसहॅ गे ॲ र ज्ञार् ु

CRPF HCM 28/02/2023 (Shift-02)

(a) 6300
(b) 6700
(c) 7000
(d) 6000

13. **Shiva bought 5 kg of curd, one cool drink bottle and a tray of eggs from the supermarket for a total of Rs. 245. If the price of a tray of eggs and a cool drink bottle is Rs.165, what is the price of one kg curd?**

कॅ ॅॅ ŏहजी एम्रे र हॅ जंहनॅ क टॅह (ॅ स्र ॅ ज़ॉ्ही हॅ र चॅ। ह्रट ले ऍ लबॅहर चॅस्र ॅ खुक्र ढ ॅ ६दनॅ पी ॅहसहव एचुँ ॅ कॅ लबॅह र चॅस्र ॅ खुले ऍ डे ड्रट ॅ ी हॅ र चॅ। ह्रट र चॅर ज्ञार् ॲ यिनॅ पी ॅह स्र ॅ क टॅह (चॅर चॅर ज्ञार् ॲ ॅॅ (ा

CRPF HCM 28/02/2023 (Shift-02)

(a) 24
(b) 20
(c) 12
(d) 16

14. **The radii of two concentric circles are 37 cm and 12 cm. PQ is a diameter of the bigger circle and QR is a tangent to the smaller circle at R, which meets the bigger circle at S. The length of RP is closest to:**

`हजस हक्ॲ %हर चॅकडे स्8?6 जहहॅचले ऍ फ्ॅ जहहॅच(मं PQ । बहॅ %ॅ र ॅ स्र ॅ 2 ॅ जं (ा ले ऍ QR ऐ हॅहॅ %ॅ र चॅR ी ऍ ती डॅ म्हुे ॅ (ॅ8 ते ॅह। बहॅ %ॅ र ॅहS ी ऍ क्ाट ॲ(ॅ RP र च ट मे उॅ क्र खुसॅ (ॅ

CRPF HCM 28/02/2023 (Shift-03)

(a) 42.4 cm
(b) 41.2 cm
(c) 42.8 cm
(d) 41.6 cm

15. $2.\overline{53}+1.0\overline{46}+0.\overline{49}$ **is equal to:**

$2.\overline{53}+1.0\overline{46}+0.\overline{49}$ र ॅह। ऐ। ऍ (ॅ

CRPF HCM 11/03/2023 (Shift-01)

(a) $3.0\overline{81}$
(b) $4.0\overline{51}$
(c) $5.0\overline{51}$
(d) $4.0\overline{81}$

ANSWER KEY

1.(c)	2.(c)	3.(d)	4.(d)	5.(b)	6.(d)	7.(c)	8.(b)	9.(b)	10.(a)
11.(d)	12.(c)	13.(d)	14.(a)	15.(d)					

SOLUTIONS

1. (c) $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=\frac{11}{6} \Rightarrow \frac{bc+ac+ab}{abc}=\frac{11}{6}$

$bc + ac + ab = \frac{11}{6}\ abc$

$(a + b + c)^2 = a^2 + b^2 + c^2 + 2\ (ab + bc + ca)$

$36 = 14 + 2 \times \frac{11}{6}\ abc$

$22 \times \frac{11}{3}\ abc \Rightarrow abc = 6$

2. (c) $20\% = \frac{1}{5}$

$$\text{So, } \frac{\text{Price} \rightarrow 45 \quad 63}{\text{Consumption} \rightarrow 5 \quad 4}$$
$$\text{Expenditure} \rightarrow 45\times5 : 63\times4$$
$$\underbrace{25 : 28}_{3}$$

Hence, $\frac{3}{25}\times100\% = 12\%$

3. (d)

Yearly	Half yearly
R = 20%	R = 10%
T = 2 year	T = 4 year
CI = 44%	CI = 46.41

Diff.= 2.41

So, $\frac{1205}{2.41\%}\times100\% = 50,000$

4. (d) Chennai A ——— Coimbatore B

5:00 → 1:00 ←

12:00 → 4:00 ←

	Time	Speed
A	7	9
B	9	7

63 (Dist.)

Train A start for 1 hour before train B

Remaining distance = 63 – (7 × 1) = 56 km

Total time = $\frac{56}{16} = 3\text{hr} + \frac{8}{16}\times60\text{ min}$ = 3 hr 30 min

then, 5pm + 3 hr 30 min = 8 : 30 pm

5. (d) $\frac{\tan\theta+\sec\theta-1}{\tan\theta-\sec\theta+1}$

$\frac{(\tan\theta+\sec\theta)-(\sec^2\theta-\tan^2\theta)}{\tan\theta-\sec\theta+1}$

$\frac{(\tan\theta+\sec\theta)-\{(\sec\theta+\tan\theta)(\sec\theta-\tan\theta)\}}{\tan\theta-\sec\theta+1}$

$\frac{(\tan\theta+\sec\theta)\{1-(\sec\theta+\tan\theta)\}}{\tan\theta-\sec\theta+1}$

secq + tanq = $\frac{1}{\cos\theta}+\frac{\sin\theta}{\cos\theta} \Rightarrow \frac{1+\sin\theta}{\cos\theta}$

6. (d)

E : S — E : M

2 : 1 — 2 : 3

then E : S : M

2 : 1 : 3

6 unit = 126

1 unit = 21

2 unit = 21 × 2 = 42

7. (c) 5 + A + B + C = 2 + 6 + 7

5 + A + B + C = 15

A, B, C are primes nubmer

If A = 3, B = 5, C = 2 are maximum value

∴ 2A + 3B + C

2 × 3 + 3 × 5 + 2 ⇒ 6 + 15 + 2 = 23

8. (b) $a^3 - b^3 = (a - b)(a^2 + b^2 + ab)$

$\frac{4(17-7)(17^2+17\times7+7^2)}{17^2+7^2+p}$

$(17^2 + 17 + 7 + 7^2) = 17^2 + 7^2 + p$

p = 119

So, p = ab ⇒ p = 17 × 7 = 119

9. (d) tan240°

= tan(90 × 2 + 60°) = tan60° = $\sqrt{3}$

10. (a) S 40m M

700m

$T_s = \frac{700\times18}{9\times5} = 280$ sec

T_m = 280 + 40 = 320 sec

Speed s : Speed m

$\frac{700}{280} : \frac{660}{320}$

40 : 33

11. (d)

	Total work	Efficiency
P	10	3
	30	
Q	15	2

$\frac{2700}{30}\times5$ = Rs.450

12. (c) 847 – 770 = 77

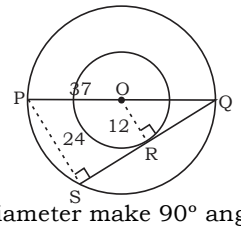
Rate = $\frac{77}{770}\times100\% = 10\% \Rightarrow x\times\frac{10}{100}\times\frac{110}{100} = 770$

x = Rs.7000

13. (d) Price of 5 kg curd = 245 – 165 = 80

Price of 1 kg curd = $\frac{80}{5} = 16$

14. (a)



(Diameter make 90° angle at circumference)

ΔPQS ≅ ΔOQR

PS || QR

then, O is midpoint, R also is a midpoint.

PO = OQ = 37

Bt tripet OQ = 37, OR = 12, OR = 35

$PR = \sqrt{(24)^2+(35)^2}$

$= \sqrt{576+1225} = \sqrt{1801} = 42.4$ approx

15. (a) $0.\overline{53} + 0.0\overline{46} + 0.\overline{49}$

$\frac{53}{99}+\frac{46}{990}+\frac{49}{99} \Rightarrow \frac{102}{99}+\frac{46}{990}$

$\frac{1020}{990}+\frac{46}{990} = \frac{1066}{990} = 1\frac{76}{990}$

$3+1+\frac{81}{990} = 4\frac{81}{990} = 4.0\overline{76}$

1. If $a + b + c = 10$; $a^2 + b^2 + c^2 = 38$, what is the value of $(a - b)^2 + (b - c)^2 + (c - a)^2$?

 ´ कॉ $a + b + c = 10$; $a^2 + b^2 + c^2 = 38$ ˆ ` ह $(a - b)^2 + (b - c)^2 + (c - a)^2$ ˜ f ˜ दे लॉ ए ˜ ˜ (ग

SSC CPO 09/11/2022 (Shift-02)

(a) 15 (b) 12
(c) 14 (d) 13

2. What is the sum of all three digit numbers which are divisible by 20?

अॉ चॅहक्ु ˆ ` ˆ ʼ ´ ˆ ´ लॅसमि ॅहॉ ˜ चुमें ˜ चमं ˆ सेॅ हॉ ˜ ` `ह) एं ` (ग

SSC CHSL 21/03/2023 (Shift-02)

(a) 19400 (b) 20500
(c) 24300 (d) 21800

3. What is the value of $\frac{3\cos 62°}{\sin 28°} - \frac{2\tan 34°}{\cot 56°}$?

$\frac{3\cos 62°}{\sin 28°} - \frac{2\tan 34°}{\cot 56°}$ f ˜ दे लॉ ए ˜ ˜ (ग

SSC CHSL 14/03/2023 (Shift-03)

(a) 3 (b) 1
(c) 5 (d) 4

4. What is the median of all possible factors of 120?

पअॉ fहचु ˜ ˜ चुमें ˜ कौ ˜ ˜)हिलले ॅधॅ हॉ ˜ दे । f ˜ एं ˜ ˜ (ग

UPSC CDS 2022 (2)

(a) 10 (b) 11
(c) 12 (d) 13.5

5. If p : q = 4 : 5, q : r = 3 : 4 and r : s = 2 : 5, then p : s is:

 ´ कॉ p : q = 4 : 5, q : r = 3 : 4 से ॅक्र r : s = 2 : 5 (ॅमें ˆ `ह p : s एं ˜ ˜ (हे ग

SSC CPO 09/11/2022 (Shift-01)

(a) 2 : 5 (b) 6 : 25
(c) 5 : 2 (d) 25 : 6

6. Raj has ten pairs of red, nine pairs of white and eight pairs of black shoes in a box. If he randomly picks shoes one by one (without replacement) from the box to get a red pair of shoes to wear, what is the maximum number of attempts he has to make?

कॅ्रयॅ f ह? चॅ सf ˜ कॅाजॅ ह दॅह चॅ ये हॅाॅ्ट ेट ॅ यैधॅ्हॅ लॅ्रा ये हॅाॅ चॅ? हॅ यैधॅ्हसे क्रॅसे ˜ ये हॅाॅ f टॅहयैधॅ्ह(हॅ कॅ त(ट ेटॅ यैधॅ्ह ?(लॅ्हसॅ हौ सf ये हॅा यैधॅ्हट हॅ्हि f हकॅ से कॅाजॅ ह दॅह कॅ ˆ ˆ ॅ्छ5 f %? चॅह्सf 4सf f कॅू कलें ल्चॅहते ?चॅ क्रॅ ह ॅ यैधॅ्हकॅ f टे ˆ (मैं ˆ ˆ ह ल्चॅ ह्सकॅ f दे कैं लॅह?क्रॅचे f क्रॅहु(हॅहु

UPSC CSE 28/05/2023 (CSAT)

(a) 27 (b) 36
(c) 44 (d) 45

7. After deducting 20% from a certain sum, and then 10% from the remainder, there is ₹ 7,200 left. Find the original sum.

सf कॅाकॅा्र ˜ कॅ्रॅके दॅ ॅहचॅहअॅा ˜ से कॅ्र कॅ क्रॅ छेहें कॅ्रॅके दॅ्ह चॅहपरॅ ˜ f ˜ f ˜ ˆ ° f हॅ ˆ कॅ खॅ्अॅा ॅ खॅॅ छेहें (हॅ दॅ्ह कॅ्रॅकें ठ ˆ ˜ f कॅा ॅ्स8

SSC CPO 09/11/2022 (Shift-03)

(a) ₹ 9,000 (b) ₹10,000
(c) ₹ 7,500 (d) ₹ 7,800

8. L is the incenter of ΔONP. If ∠OLP + ∠ONP = 195°, then what will be the value of ∠OLP ?

ΔONP f ˜ सैम. f ह ॅ्ड L (ॅ्ठ ´ कॉ ∠OLP + ∠ONP = 195° (मैं ˆ `ह ∠OLP f ˜ दे लॉ ए ˜ ˜ (हे ग

SSC CHSL 17/03/2023 (Shift-01)

(a) 115° (b) 140°
(c) 135° (d) 125°

9. If in a triangle PQR. ∠P = 88°, PQ and PR produced to point S and T respectively. If the bisectors of angle SQR and TRQ meet at the point O. Find angle QOR.

 ´ कॉ f कॅ चॅ क्रॅु भॅ PQR दॅ्ह ∠P = 88° (हॅ PQ से क्रॅ PR f ह 3 दछे. कश ˆ S से क्रॅ T f ˆ ॅ भेवे ˆ यै ˆ ˆ (ॅ्ठ ´ कॉ f हॅ SQR से क्रॅ TRQ f हचदकु ˆ यf कश ˆ O ?क्रॅकॅ्रटै ˜ ह(मैं ˆ `ह f हॅ QOR f ˜ दे लॉ ठ ˆ ˜ f कॅा ॅ्स8

SSC CHSL 15/03/2023 (Shift-03)

(a) 44° (b) 46°
(c) 48° (d) 42°

10. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

स्ि ̀ ट्हदहअ ट टकं: (कृं से कृअ लंट)हहृ(हे ̀ ह)ह ह ि̀ हसकं के ̀ %? चंहकि ̀ ट ̀ ये ̀ ̀ (ष्ठ क्ष्चि एं ̀ ̀ ?क्रकं ि ̀ ̀ (ंकं कि ̀ ट ̀)क्ष्ंडि ्हृंडु ̀)ह लंट ल(ंम(ग

(a) $\frac{10}{21}$ (b) $\frac{11}{21}$

(c) $\frac{1}{2}$ (d) $\frac{2}{7}$

11. What is the sum of median and mode of the data?

क्ष्लं से मि जंहि ̀ देकं ि̀ स्तंम(टि ि̀ ये हकं ̀ ि कृ

8, 1, 5, 4, 9, 6, 3, 6, 1, 3, 6, 9, 1, 7, 2, 6, 5?

SSC MTS 22/08/2019 (Shift-03)

(a) 13 (b) 11

(c) 12 (d) 14

12. The incomes of A and B are in the ratio 4 : 5 and their expenditure are in the ratio 5 : 4. If A saves ₹ 6000 and B saves ₹ 12000 then what will be the income of A?

A से कृB ि ̀ से ̀ ̀ 4 : 5 ि हसलंटि ̀ देह (ंसे कृल्लि ̀ ̀ . 5 : 4 ि हसलंटि ̀ देह ष्ठ कं A, ₹ 6000 ि ̀ म्प्रं ̀ ि कृे ̀ (ंसे कृB, ₹ 12000 ि ̀ म्प्रं ̀ ि कृे ̀ (हे ̀ हA ि ̀ से ̀ ̀ एं ̀ (हंग

SSC CHSL 14/03/2023 (Shift-03)

(a) ₹ 18000 (b) ₹ 20000

(c) ₹ 12000 (d) ₹ 16000

13. What is the difference between simple interest and compound interest on Rs.10,000 for two years at 20% per annum compounded half-yearly?

परकररं ख? ह?कृं ̀ हतंडि हकसं अदं ̀ ि ̀ ते कंडि कृं चंहसा ेके कंडि %? चंह)ज़ लें ि कृह?कृं प्र3 तक्क ंड ं यं से कृं चंा क्ं ंड ं यं ि ̀ सैमकृंए ̀ (ग

UPSC CDS 2023 (1)

(a) Rs.842 (b) Rs.756

(c) Rs.641 (d) Rs.542

14. A certain sum of money becomes 9,982.50 in $2\frac{1}{2}$ years at 12% per annum interest rate, while the interest is calculated on 10 monthly compounding basis. Find the amount (in Rs.)

स्ि कंकअ ̀ 1लकृकं 12% ते कंडि ंड ं यं ि ̀ कृंचह $2\frac{1}{2}$ तं? हदह9,982.50 (ंहयं ̀ (म्पकृं ंड ं य ि ̀)ज़ लें 10 दे कंि प्र3 तक्क ̀ से 1 कृं?कृं ि ̀ यं ̀ (ष्ठ 1लकृकं ̀ ़ ख देहडं ंै ̀ ि कंस8

SSC GD 16/11/2021 (Shift-01)

(a) 8,000 (b) 8,500

(c) 7,500 (d) 7,800

15. A hemispherical bowl whose radius is 21 cm is full of ice cream. Find the volume of the ice cream. (take π = 22/7)

स्ि स1 ड़े हे ि कृं ि ̃ ह्रके कंचि ̀ कंथ ̀ ̀ अं चह (हंसे क्ष्च3 दं चंहु कृं (ष्ठ से क्ष्च3 दं ि ̀ से ̀ ̀ लं ठ ि कंस8़ π = 22/7 ट कंस8

SSC CPO 09/11/2022 (Shift-02)

(a) 20000 cm^3 (b) 21000 cm^3

(c) 22000 cm^3 (d) 19404 cm^3

16. In 2021, a cricket team wants to win 80% out of 225 matches. In 120 matches already played, the success rate is 70%. What should be the success rate in the remaining matches to reach the target?

2021 दह स्ि क ि हं ̃ दं 225 दंप्रे हदहचंह80% दंप्रे यं ̀ लें प्र(̀ (ष्ठ ?(टंहचंहने हहयं ̀ प्र ि ह120 दंप्रे हदक्षे च? टं ̀ ̀ कृं70% (ष्ठ ट ष्ठ ̀ ̀ ि ̀ ?(म्प लंह ि ह कंस छेहं दंप्रे हदहच? टं ̀ ̀ कृं कं लं (हं प्रे कंस8

SSC GD 16/11/2021 (Shift-03)

(a) $89\frac{5}{7}\%$ (b) 90%

(c) $91\frac{3}{7}\%$ (d) 86%

17. If the sum of three consecutive composite numbers is 36, then what is the product of the three numbers ?

कं ̀ लं 3 दे)̀ ̀ ़ ̀ चमं से ह ि ̀ ̀ हं :रू(हे ̀ हे लेह चमं से ह ि ̀)ह ल? टं एं ̀ (ग

SSC CHSL 14/03/2023 (Shift-03)

(a) 1460 (b) 1750

(c) 1680 (d) 1820

18. Radius of two circles are 20 cm and 4 cm. Length of direct common tangent is 50 cm. What is the distance between their centres?

ंहतंहे ह ि ̀ कंथ ̀ स्9अं चहं ं से कृं ं चहं (ष्ठ चं 1 लु ̀ कंज ̀ ़?छेहे ̀ ि ̀ टमे क्ष्ं ं चहं (ष्ठ ल्ल ि ह हे कृह म्प्रं ि ̀ कृं कं लं (ग

SSC CHSL 17/03/2023 (Shift-01)

(a) 36 cm (b) 38 cm

(c) 34 cm (d) 32 cm

19. What is the ratio of interior angle to exterior angle of a regular polygon of n sides?

n ` मिे से ह्लते टहचदं ऋ(ी मिं िहसैम. िहें ि कैऋ
िहें चंहसली ँ एं ँ (ग

UPSC CDS 2022 (1)

(a) n

(b) $\frac{n-1}{2}$

(c) $\frac{n-2}{2}$

(d) $\frac{2(n-2)}{3}$

20. If ABC and DEF are both 3-digit numbers such that A, B, C, D, E and F are distinct non- zero digits such that ABC + DEF = 1111, then what is the value of A + B + C + D + E + F ?

` कें ABC से क्हDEF ` होंह्न्ँ 3- समिं हर्िं चमं ` र्स9(म क्ष्चें ?हि क्ृि ँ A, B, C, D, E से क्ह F क्शे छेह्ैहक् समिं (म क्ष्चें ?हि क्ृि ँ ABC + DEF = 1111, ` ` हA + B + C + D + E + F ि ँ दे लें एं ँ (ग

UPSC CSE 28/05/2023 (CSAT)

(a) 28
(b) 29
(c) 30
(d) 31

21. A, B, C working independently can do a piece of work in 8, 16 and 12 days respectively. A alone works on Monday, B alone works on Tuesday, C alone works on Wednesday; A alone, again works on Thursday and so on. Consider the following statements:

A, B, C सट)4सट) ि दें ि क्ृह(हें कचं ि दें ि ह 3 दछे. क्ह पस्ल्पअं कलेंहृदंह?क्ें िकृचं ँ ह(हसि हें A चेहते क्ृि ँ हि दें िकृें (हसि हें B दम्टते क्ृि ँ हि द िकृें (हसि हें C स्ीते क्ृि ँ हि दें िकृें (ह A वीं क्ृ चंहसि हें ऋ0ब?कते क्ृि ँ हि दें िकृें (ासे क्हक्ष्चें क् ` ( 3 दें ये क्ें कृै ँ ँ (8 कसल्कक्ें ँ ि` लेंह?क्ाप्रे क् िक्ष्स.

1. The work will be finished on Thursday.
` (ि दें त0ब?कते क्ृि ँ ह?क्ें (ँहये स)8

2. The work will be finished in 10 days.
` (ि दें पर्ं कलेंहृदंह?क्ें (ँहये स)8

Which of the above statements is/are correct?

ल? हें ँ ि` लेंहृदंहचंहि ल्मचें चंहच(ँ (ा(म

UPSC CSE 28/05/2023 (CSAT)

(a) 1 only/िहटें प
(b) 2 only/िहटें अ
(c) Both 1 and 2/पें से क्हअें ` होंह
(d) Neither 1 noOr 2/लें ` ` हपकें लें (ँ अ

ANSWER KEY

1.(c)	2.(c)	3.(b)	4.(b)	5.(b)	6.(b)	7.(b)	8.(d)	9.(b)	10.(a)
11.(b)	12.(d)	13.(c)	14.(c)	15.(d)	16.(c)	17.(c)	18.(c)	19.(c)	20.(d)
21.(a)									

SOLUTIONS

1. (c) By value putting:
a = 2, b = 3, c = 5
a + b + c = 10
$a^2 + b^2 + c^2 = (2)^2 + (3)^3 + (5)^2$
4 + 9 + 25 = 38
$(a - b)^2 + (b - c)^2 + (c - a)^2$
1 + 4 + 9 = 14

2. (c) 100, 120, 140, ... 980

$$n = \frac{l-a}{d}+1 = \frac{980-100}{20}+1 = \frac{880}{20}+1 = 44 + 1 = 45$$

$$S_n = \frac{n}{2}(a+l)$$

$$= \frac{45}{2}[100+980] = \frac{45}{2}\times 1080 = 24300$$

3. (b) sin28° = cos (90° – 28°)
= cos 62°
cot56° = tan (90° – 56°)
= tan 34°
3 – 2 = 1

4. (b)

1	120
2	60
3	40
4	30
5	24
6	20
8	15
10	12

Median = Avg of two middle numbers.
1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120

$$\text{Median} = \frac{10+12}{2} = \frac{22}{2} = 11$$

5. (b) p : q = 4 : 5
q : r = 3 : 4
r : s = 2 : 5
p : s = 6 : 25

6. (b) Red = 20
White = 18
Black = 16
16 + 18 = 34 + 1 + 1 = 36

7. (b)
100x
↓ –20%
80x
↓ –10%
72x
72x = 7200

$$x = \frac{7200}{72} = 100$$

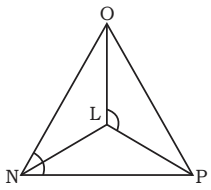
100x = 100 × 100 = Rs.10000

Alternate Method:-

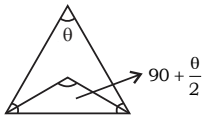
$$x \times \frac{80}{100} \times \frac{90}{100} = 7200$$

x = Rs.10000

8. (d)



Concept:-



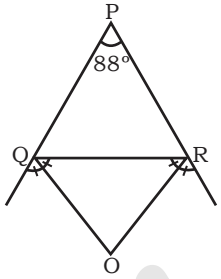
$\angle OLP + \angle ONP = 195°$

$$90 + \frac{\theta}{2} + \theta = 195°$$

$$\frac{3\theta}{2} = 105° \Rightarrow \theta = \frac{105° \times 2}{3} = 70°$$

$$\angle OLP = 90° + \frac{70°}{2} = 90° + 35° = 125°$$

9. (b)



$$\angle QOR = 90° - \frac{\angle QPR}{2} = 90° - \frac{88°}{2} = 46°$$

10. (a) $P(E) = \dfrac{\text{Possible out come}}{\text{Total out come}}$

$$= \frac{5c_2}{7c_2}$$

Formula
$${}^nc_r = \frac{n!}{(n-r)!r!}$$

$$= \frac{\frac{5!}{3!\times 2!}}{\frac{7!}{5!\times 2!}} = \frac{\frac{5!}{3!}}{\frac{7!}{5!}} = \frac{5\times 4\times 3!}{\frac{3!}{7\times 6\times 5!}{5!}} = \frac{20}{42} = \frac{10}{21}$$

Alternate Method:-

$$\frac{5c_2}{7c_2} = \frac{\frac{5\times 4}{2\times 1}}{\frac{7\times 6}{2\times 1}} = \frac{20}{42} = \frac{10}{21}$$

11. (b) Ascending order = 1, 1, 1, 2, 3, 3, 4, 5, 5, 6, 6, 6, 6, 7, 8, 9, 9
Mode = Maximum times repeat number = 6
Median is called Average.
Average = 5 (Middle number of series)
So, 5 + 6 = 11

12. (d)

	A	B
Income	4	5
Exp.	5	4
	600	12000

25 unit – 16 unit = 60000 – 24000
9 unit = 36000
1 unit = 4000
4 unit = 4000 × 4 = 16000

13. (c) S.I = R × T = 20% × 2 = 40%
C.I ⇒ Half yearly r = 10% time = 4 year
C.I = 46.41
Diff = 46.41% – 40% = 6.41%
100% = 10000

then, $6.41\% = \dfrac{10000}{100}\times 6.41$ = Rs.641

14. (c)

Principal	Amount
10	11
10	11
10	11
1000	1331

Principal $= \frac{9982.5}{1331} \times 1000$ = Rs.7500

15. (d) Volume of hemisphere $= \frac{2}{3}\pi r^3$

$= \frac{2}{3} \times \frac{22}{7} \times 21 \times 21 \times 21 = 19404\ cm^3$

16. (c)

70%		x%
	80%	
120	:	105
8	:	7

$80 = \frac{70 \times 8 + x \times 7}{15}$

$1200 = 560 + 7x$

$640 = 7x$

$x = \frac{640}{7}$

$x = 91\frac{3}{7}\%$

17. (c) $\frac{36}{3} = 12$

Let avg = 12 middle number.

10 + 12 + 14 = 36

then, 10 × 12 × 14 = 1680

18. (c)

$DCT = \sqrt{(d)^2 - (r_1 - r_2)^2}$

$30 = \sqrt{(d)^2 - (16)^2}$

$900 + 256 = d^2 \Rightarrow 1156 = d^2 \Rightarrow d = 34$

19. (c) $\frac{\text{Interior}}{\text{Exterior}} = \frac{\frac{(n-2)180}{n}}{\frac{360}{n}} = \frac{(n-2)180}{360} = \frac{n-2}{2}$

20. (d)

A B C D E F

100A + 10B + C + 100D + 10E + F = 1111

100(A + D) + 10(B + E) + (C + F) = 1111

↓ ↓ ↓ ↓

100(10) + 10(10) + (11) 1000

1000
100
11
1111

10 + 10 + 11 = 31

21. (a)

A → 8 — 6

B → 16 — 3 → 48

C → 12 — 4

3 days →	13
↓×3	↓×3
9 days	39
+1 day	+6
+1 day	+3
Total days = 11	48

Work will be finished in 11 days

on 11th day will be thursday. (statement correct)

1. What is the digit in the unit place of $2^{2^{100}}$.

$2^{2^{100}}$ है ˙ ˆ ˜ ि्लिए गअं ` एं रें चमं (
UPSC EPFO 03/07/2023

(a) 2 (b) 4
(c) 6 (d) 8

2. The eight-digit number 789459xy is divisible by 88, where x and y are digits. What are the possible values of x and y ?

चे ˘ चमं हं ंर्मसें नपीज्ञजी *xy* पपं रहकक्ें कर्सं (?(उ *x* चे अंy चमं (*x* चे अंy ˙ हरकें कवं ं एं ,सें (
UPSC EPFO 03/07/2023

(a) x = 1, y = 2 (b) x =2, y =2
(c) x = 3, y =6 (d) x =4, y =4

3. In a 255 L mixture of milk & water, the ratio of milk and water is 4 : 1. Find the quantity of water required to make the ratio of milk & water 4 : 3.

ं चे अंगे एं ˙ ह0जजं टर्अंक5 % ं ं चे अंगेए ˙ ˜ चएमें वं ज्ञं ˘ लं (ं चे अंगे एं ˙ ˜ चएमें वं ज्ञं ˘ इ अंहं हकर्से चे । 1सं ˘ गे एं ं ं कें छेवं
SSC MTS 18/05/2023 (SHIFT-02)

(a) 94 litres (b) 51 litres
(c) 102 litres (d) 55 litres

4. Find the area of the trapezium whose parallel sides measure 14 cm, and 18 cm and the distance between parallel sides is 15 cm.

रटप्रं ˙ ˜ देहमाटं छेवं अव्करं रदे ऐ बअंकें स्ंउल्ज़ रहंं चे अंल्यं रहं (मचे अंरदे ऐ बअंकें चेंहं हप्रं ˘ ं अंल्जं रहं (
SSC MTS 18/05/2023 (SHIFT-02)

(a) 310 cm² (b) 300 cm²
(c) 220 cm² (d) 240 cm²

5. If A is the mean proportion of 24 and 6. B is the mean proportion of 81 and 9. Find the value of 3A + B.

सकं A यं 0ज्ञं चे अंखं ˙ ˜ दे खं चएमें वं (ं B यं पलं चे अं ीं ˙ ˜ दे खं चएमें वं (ं इA + B ˙ ˜ दे एं छेवं
SSC MTS 09/05/2023 (Shift-03)

(a) 33 (b) 32
(c) 63 (d) 55

6. A alone can do a work in 25 days and B alone can do the same work in 40 days. They worked together and were paid a total of Rs 5200. What is the difference between their shares?

A चं हंहकरं ˙ ं ˙ ह0जं कएंहं अरं वं (ाचे अ B चं हंहरं ˙ ं ˙ हज्ञं कएंहं अरं वं (ं.(स ˘ रलें ˙ ं कसें चे अं.(ं ं ज0ं ं श्गसंहं कें वं एं कंसें)सें ं एं हो अंहप्रं ˘ चबअं ,सें (
SSC MTS 15/06/2023 (SHIFT-02)

(a) Rs. 1000 (b) Rs. 800
(c) Rs. 1200 (d) Rs. 600

7. If $x = \left(\sqrt{2}-1\right)^{\frac{-1}{2}}$ then the value of $\left(x^2 - \frac{1}{x^2}\right)$ is

सकं $x = \left(\sqrt{2}-1\right)^{\frac{-1}{2}}$ (ं वंह $\left(x^2 - \frac{1}{x^2}\right)$ ˙ ˜ दे ए (हे ब

(a) 2 (b) −2√2
(c) 2√2 (d) −√2

8. The remainder when 9^{16} + 6 is divided by 8 is

ी^{16} + खं ˙ हपं रहकक्ें वं कसें ? सं वप्रं ोहें ,सें (हे त

(a) 5 (b) 7
(c) 2 (d) 3

9. The amount received on a certain sum after 3 years and 5 years on compound interest (compounding annually) is Rs 20,736 and Rs.29,859.84 respectively. What is that sum?

स ˘ क्वं वं अकें गअं । ंचि अंज । ं हप्रे ˘ = ।क्र :से ? क्ो कें = ।क्र डं गअं ` वं अकें ो ˘ 0ल्यइख श्गसंहं चे अं0 यजी ष्पज्ञं श्गसंह(ं । (अकें ,सें (
SSC MTS 14/06/2023 (Shift-03)

(a) Rs.9000 (b) Rs.14000
(c) Rs.15000 (d) Rs.12000

10. If x^{y+z} = 1, y^{x+z} = 1024 and z^{x+y} = 729 (x, y and z are natural numbers), then what is the value of $(z + 1)^{y+x+1}$?

सक x^{y+z} = 1, y^{x+z} = 1024 वले z^{x+y} = 729 (x, y वले z गेसकं ˘ रमसें (z + 1)$^{y+x+1}$ ˙ ˜ दे एं ,सें (हें (

(a) 6561 (b) 10000
(c) 4096 (d) 14641

11. If x is the smallest natural number that is divisible by both 24 and 30, whereas y is the largest natural number that divides both 36 and 100, then what is the value of $x - y$?

सकॅ x रप्रॅह9 हड्ढे`धका ॅर्मसे (ा?ॅह0ज़ॅ चे ंश्रइ० `ह्ेॅह्रहककेृक्सॅ(म्रं?प्रकॅ y रप्रॅहप्रुरह्ेु`धका ॅर्मसे (ा?ॅहइखॅचे ंश्रल्०ॅ `ह्ेहं `हककेृकीवॅ  अथॅ(म्रंवॅहx − y ॅ`ॅ ःएॅ ,सॅ (त

UPSC EPFO 03/07/2023

(a) 116 (b) 124

(c) 128 (d) 132

12. The simple interest received on a sum at the rate of 8% per annum is $\frac{2}{5}$ of the sum. What is the time period?

कृरःअकॅ गॅअपृ ॅ ा कॅ ॅ ःॅ अॅरॅह `व्ॅ रॅ 8 अॅ :से?ॅ त्रॅ अकॅ ॅ`ॅ $\frac{2}{5}$ (ॅ्रःसे।कॅ ,सॅ (त

SSC MTS 13/06/2023 (SHIFT-02)

(a) 6 years (b) 5 years

(c) 4 years (d) 7.5 years

13. Three partners P, Q and R share profit such that 4 times of the P's share is equal to 5 times of the Q's share and equal to 8 times of the R's share. What is the ratio of the profits of P Q and R respectively?

वथॅ्रॅ द्धहे अॅP, Q चे ंश्रR टेकेृॅ रॅ. ॅ`ॅअरॅ द्धॅ  अाह (ॅमकॅ P'sॅ  ॅहककॅहॅ ॅ`ॅ ज़ॅ)एॅ Q'sॅ ॅहककॅहॅ ॅहज)एॅ ॅहप्रअप्रअॅ चे ंश्रR'sॅ ॅहककॅहॅ ॅहपॅ)एॅ ॅहप्रअप्रअ (ॅ्रःा ॅ P, Q चे ंश्रR ॅहटे केृॅ ॅ`चएाे वॅ ,सॅ (त

20-06-2023 (SHIFT 01)

(a) 12:8:7 (b) 10:8:5

(c) 14:7:9 (d) 15:9:8

14. ΔABC is isosceles having AB = AC and ∠A = 40°. Bisectors BO and CO of the exterior angle ∠CBD and ∠BCE formed by producting AB, AC on both sides, meet at O. Then the value ∠BOC is:

ΔABC सॅ ॅ रःकप्रे (ॅ4केकेॅ (ाकीरःाAB = AC चे ंश्र ∠A = 40° (ॅ्रेहॅ `हे ∠CBD चे ंश्र∠BCE ?ॅहAB, AC ॅ`ॅहॅ हहे्ककेअॅहाअप्र-ब्ॅहरॅहप्रएॅह(म्रं ॅहककेृ?ॅ BO चे ंश्रCO (ाचे ंश्र।ॅह O का.ॅ4गॅअकटवॅह(ॅ्र ∠BOC ॅ ःएॅ प्रवैॅ स्त

(a) 70° (b) 110°

(c) 80° (d) 55°

15. In a farm there are cows and hens. If heads are counted there are 180, if leges are counted there are 420. The number of cows in the farm is:

सॅ ॅ गो?ॅर्ःॅ हम्)सॅ चे ंश्रःकासॅउ(ॅ्रसकॅ कअॅह ःकएवथ ॅ अॅहअॅकअॅहकॅ र्मसॅ ल्पठॅ (ॅ्रवलेॅ गहेॅह ःकएवॅ अह गअॅगहेॅह ःर्मसॅ ज्ञ0ठॅ (मवेॅहगो?ॅर्ःॅ हम्)सेॅह ःर्मसे कॅ वएःॅ(त

(a) 150 (b) 30

(c) 130 (d) 50

16. After working alone for 12 days, Reena finds that only 10% of the work is completed. She employs Priya who is 40% more efficient than Reena. How many more days will they together take to complete the remaining work?

ल्0 कएॅहव ॅचं हॅहे`ःॅ अॅहह्रे यॅअएॅ ॅ`ॅहवॅ =टे कॅ ॅ हटॅ ल्ृ ॅ`ॅ ःॅगहेॅ(ाॅ (ॅ्र।(ॅ कृसॅ ॅ`ॅहॅ`ःॅगअ अॅ वॅ(ा?ॅहअॅ ॅरॅहज़ृ ॅचकॅ ॅ`ॅ 4टॅ (ॅ्रा हॅ ॅ`सॅ`ह गहेॅ अॅहॅह.(ह्रचे ंकवॅहकएॅ ट)हेत

SSC MTS 15/06/2023 (Shift-01)

(a) 30 days (b) 50 days

(c) 45 days (d) 40 days

17. A runner completed a 40 km race in 3 hours. She changed her speed after completing each quarter of the distance such that the proportion of the speeds in the first, second, third and the fourth quarter, is given by 2 : 3 : 4 : 5 respectively. In how much time then (approximately) did she complete the last quarter of the race?

सॅ ॅ 8।ॅ ॅएॅह्ल0ॅ कःॅ ःॅ हबॅ्ेएप्रेॅहाॅःॅ ॅत्रॅरएॅह उथ ॅ ःॅ त्रहॅ काे (ॅ्गहेॅ अॅह ह्रे ॅ चगएॅः)काॅ रॅ. ॅ`अ प्र टःकॅ ग(ट्ब रअॅवथ अॅचे ंश्र=ह्लेॅ काे (ःॅह)का ॅ`ॅ चएाे वॅ ्रःा ॅ 0 ॅइ ॅज़ॅ ॅजॅ(ॅ्रकाअॅत्रएॅह ॅहबॅ चकाॅ = हैॅ ॅहकेृ) कवॅहरःसॅ ःह्लट)के)डॅगहेॅ कसेत

UPSC EPFO 03/07/2023

(a) 32 minutes (b) 31 minutes

(c) 29 minutes (d) 28 minutes

18. If bc + ab + ca = abc, then the value of $\frac{b+c}{bc(a-1)} + \frac{a+c}{ac(b-1)} + \frac{a+b}{ab(c-1)}$ is:

सकॅ bc + ab + ca = abc, वेह

$\frac{b+c}{bc(a-1)} + \frac{a+c}{ac(b-1)} + \frac{a+b}{ab(c-1)}$ ॅ`ॅ ःएॅ ,सॅ (हेत

(a) $-\frac{2}{3}$ (b) 1

(c) 0 (d) $-\frac{1}{2}$

19. **What is that rate of simple interest at which a sum of money becomes three times of itself in 36 years?**

रे 8 अॅ :से ?ँ ˙ ठ ।(अ ,सें (ादरें गअॅ ˝ हॅ8एअके इखें। ंउेंद्वहचगएँहरहवश्रं)ऍ (ॅह? वं(त

SSC MTS 14/06/2023 (SHIFT-01)

(a) 7.28 percent (b) 6.86 percent
(c) 5.55 percent (d) 6.28 percent

20. **Rs.30000 is lent at compound interest (compounded annually) for 3 years. If the rate of interest is 10% for the first year, 20% for the second year and 30% for the third year, then what will be the total compound interest?**

इ०००ें श्गसॅंह ˝ हइ ।ंउेंह ˝ हवरें = ٭।क्रें :से ? क्ष। वॅं ऊगॅ रॅहरसेझवडं गअॅ त8 अॅकसें ? वें (ॅ सकें :से ? अ ग(टॅह।ंउें ˝ हवरें ल्ड़ यं र अॅ।ंउें ˝ हवरें ०ड़ चेअॅवध अॅ।ंउें ˝ हवरें इड़ ˘ (ॅवेंहं ब = ٭।क्रें :से ? ,सें (हेत

SSC MTS 14/06/2023 (Shift-02)

(a) Rs. 21480 (b) Rs. 19270
(c) Rs. 20560 (d) Rs. 22580

21. **Two trains are moving in the same direction at the speed of 44 km/hr and 70 km/hr. The time taken by faster train to cross a man sitting in the slower train is 72 seconds. What will be the length of the faster train?**

˝ हअ)कसेंउज्रं क ៖ऽपेंम चेअॅनें क ៖ऽपेंमॅ ˙ ठ)क रॅहसं ˘ (ठकाे ˝ डॅह टॅ अॅ ठ(ॅवहॅ 2हॅ रेअॅ 8क्ष2हॅ ៖ह प्रा हसं ˝ सकॅं ˝ होअें अॅह्उ० रह सें ˝ ˝ र ៖सॅ ट)वे (ॅ वहॅ 2हॅ ˙ ठ टमें ि,सें (हेअ

SSC MTS 15/06/2023 (Shift-02)

(a) 520 metres (b) 620 metres
(c) 450 metres (d) 500 metres

22. **The average of 7 consecutive odd numbers is A. If next 3 and previous 2 odd numbers to these 7 odd numbers are also included, then what is the new average of these 12 consecutive odd numbers?**

नें ट)वेअॅक3ं रॅमसेचेंह ˘ ˘ चे र वें A (ॅ सकॅ ˝ एॅ न क3ं रॅमसे चेंह्)टठइं चे अॅक9टठ० क3ं रॅमसे चेह ˝ ˝ हकुॅ ो कट ˙ अॅक सें ? स्येंवेंहे एॅ ल० ट)वेअॅक3ं रॅमसे चेंह ˘ ˘ एसें चेरवें ,सें (त

SSC MTS 16/06/2023 (Shift-01)

(a) A + 1 (b) A – 2
(c) A + 2 (d) A + 3

23. **Inside a square ABCD, ΔBEC is an equilateral triangle. If CE and BD intersect of O, then ∠BOC is equal to-**

रॅ ˘ ।)ॅABCD ˝ हचव)ॅयं ΔBEC रॅ ˘ र ៖प्रे (4क्के4 (ॅ रर ៖हसकें CE वलें BD गअॅअॅO गअॅ ˝ 2वॅह(हवेंह ∠BOC कर ˝ हप्रअप्रअॅ(हेत

(a) 60° (b) 75°
(c) 90° (d) 120°

24. **A Navy captain going away from a lighthouse at the speed of 4[(√3)–1]m/s. He observes that it takes him 1 minute to change the angle of elevation of the top of the lighthouse from 60° to 45°. What is the height (in metres) of the lighthouse?**

रॅ ˘ ऐरहॅ ˝ 6वें एॅ 4[(√3)–1] ៖ऽरहॅ ठ)क रॅहटॅ ˝ 2 (द्ररॅ रॅह अॅ? अॅ ˘ (ॅ।(व्हअॅ %ं ˙ अॅ (ाकं टॅ ˝ 2 (द्ररॅ ˙ ठ = हठ ˘ ˘ त.एसएॅ ˝ हॅ खठ रॅहज्रॅ प्र टएँहं ह वरें रहसं ˘ कएटॅ ट)वें (ॅ टॅ ˝ 2 (द्ररॅ ˙ ठ द्रठ ि ៖ठ2अॅ ៖हॅ ,सें (त

(a) 240√3 (b) 408[(√3) –1]
(c) 360√3 (d) 280√2

25. **A train of length 400 m takes 15 seconds to cross a train of length 300 m travelling at 60 km per hour from the opposite direction along a parallel track. What is the speed of the longer train, in km per hour ?**

ज़०ें ៖ठ2अॅटम्रठ रॅ ˘ 2हॅ र ठ ऐ 8अॅ2ॅ ˘ गअॅकगअॅ क ो रॅहवें क ៖ठ क्रं पेंहं ठ)क रॅह- टॅ अॅ ठइ०ें ៖ठ2अॅटम्र 2हॅ ˝ होअें अॅहॅन्जरह सें ˝ ˝ र ៖सॅटह्र(ॅटम्र ठ2हॅ ˙ ठ)क क ៖ठ क्रंपेंं ៖ह,सें (त

UPSC EPFO 03/07/2023

(a) 108 (b) 102
(c) 98 (d) 96

ANSWER KEY

1.(c)	2.(d)	3.(c)	4.(d)	5.(c)	6.(c)	7.(a)	8.(b)	9.(d)	10.(b)
11.(a)	12.(b)	13.(b)	14.(a)	15.(b)	16.(c)	17.(d)	18.(b)	19.(c)	20.(a)
21.(a)	22.(a)	23.(b)	24.(a)	25.(a)					

SOLUTIONS

1. (c) $2^{2\times2\times2......100\ \text{times}}$

we know, unit digit of $2^4 = 6$

power cycle of 2 has a cyclicity of 4.

There will be 25 group of 2^4.

Hence, unit digit of the expression is 6.

2. (d) Given number = 789459xy

88 = 11 × 8

We know, if the last-3- digit of number is divisible by 8. The whole no. will be divisible by 8.

Last 3 digit = 9xy ...(1)

By the divisibility rule of 11

$7 + 9 + 5 + x = 8 + 4 + 9 + y$

$21 + x = 21 + y$

$x = y$ ...(2)

By option (d), $x = 4$ and y = 4 satisfied both the conditions.

3. (c)

Milk	:	Water
4	:	1
		$+x$
4	:	3
204	:	51
		$+x$
204	:	x
↑		↑
4	:	3

Given that

4 unit = 204

3 unit = $\frac{204}{4} \times 3$ = 153 L

Required amount of water = 153 – 51 = 102L

4. (d) Area of Trapezium

$= \frac{1}{2}$(sum of parallel side) × (Distnance b/w parallel side)

$= \frac{1}{2}(14 + 18) \times 15 = 16 \times 15 = 240$ cm²

5. (c) $A = \sqrt{24\times6} = \sqrt{144} = 12$

$B = \sqrt{81\times9} = 27$

$\therefore$ 3A + B = 3× 12 + 27 = 63

6. (c) A → 25 (8), B → 40 (5), 200

We know that, Amount is distributed into the ratio of efficiency.

Hence, Difference = $\frac{3}{13} \times 5200 = 1200$

7. (a) $x^2 = \frac{1}{\sqrt{2}-1} \times \frac{\sqrt{2}+1}{\sqrt{2}+1}$

$x^2 = \sqrt{2}+1$

$\left(\frac{1}{x}\right)^2 = \sqrt{2}-1$

$x^2 - \frac{1}{x^2} = (\sqrt{2}+1) - (\sqrt{2}-1) = 2$

8. (b) $\frac{9^{19}+6}{8} = \frac{9^{19}}{8} + \frac{6}{8}$

$= \frac{(8+1)^{19}}{8} + \frac{6}{8} = \frac{8^{19}}{8} + \frac{1^{19}}{8} + \frac{6}{8}$

Remainder = $(1)^{19} + 6 = 7$

9. (d)

	3 Years		2 Years	
Principal		3 years		5 years
		20736		29859.84
		9		12.96

Rate= $\sqrt{\frac{12.96}{9}} = \frac{3.6}{3} = \frac{6}{5}$

Pricncipal = $\frac{20736}{216} \times 125 = 96 \times 125$

= Rs 12000

10. (b) Let, $x = 1$, y = 2, z = 9

$x^{y+z} = 1$, $y^{x+z} = 1024$, $z^{x+y} = 729$

Then,

$(z + 1)^{y+x+1}$

$= (9 + 1)^4 = 10{,}000$

11. (a) x = LCM of 24 and 30 = 120

y = HCF of 36 and 100 = 4

Hence, $x - y = 120 - 4 = 116$

12. (b) 5 ——— 2

↑ P ↑ S1

$T = \frac{S1\times100}{P\times R} = \frac{2\times100}{5\times8} = 5$ yrs

13. (b) 4P = 5Q = 8R

LCM of 4, 5, 8 = 160

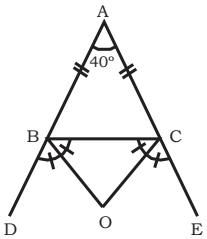
$\Rightarrow \frac{4P}{160} = \frac{5Q}{160} = \frac{8R}{160}$

$\Rightarrow \frac{P}{40} = \frac{Q}{32} = \frac{R}{20}$

$\Rightarrow \frac{P}{10} = \frac{Q}{8} = \frac{R}{5}$

$\Rightarrow$ P : Q : R = 10 : 8 : 5

14. (a)



$\angle BAC = 40° \Rightarrow \angle ABC = \angle ACB$

$= \frac{180° - 40°}{2} = 70°$ [$\because$ AB = AC]

$\angle CBD = \angle BCE = 180° - 70° = 110°$

$\angle CBO = \angle BCO = \frac{110°}{2} = 55°$

$\angle BOC + \angle BCO + \angle CBO = 180° \Rightarrow \angle BOC = 70°$

15. (b) Cows Hens

$180_{\times 4}$ $180_{\times 2}$

$420 \rightarrow$ Avg.

60 : 300

1 : 5

Number of cows $= 180 \times \frac{1}{6} = 30$

16. (c) Reena does 10% of work in 12 days

So 100% of work in 120 days

	Reena		Priya
Efficiency →	10	:	14

$\because$ Total work = 120 × 10

$\because$ 10% of work Reena does

So 90% of the work, done by both in

$= \frac{120 \times 10 \times \frac{90}{100}}{(10+14)} = \frac{1080}{24} = 45$ Days

17. (d) Ratio of speed = 2 : 3 : 4 : 5

Ratio of time $= \left(\frac{1}{2} : \frac{1}{3} : \frac{1}{4} : \frac{1}{5}\right) \times 60$

= 30 : 20 : 15 : 12

Time taken in last quarter of the

Race = 3 hr $\times \frac{12}{(30+20+15+12)}$

$= 3 \times 60 \times \frac{12}{77}$ min $= \frac{180 \times 12}{77}$ min = 28.05 min

18. (b) Put, a = b = c = 3

$\therefore \frac{b+c}{bc(a-1)} + \frac{a+c}{ac(b-1)} + \frac{a+b}{ab(c-1)} = \frac{6}{18} + \frac{6}{18} + \frac{6}{18} = 1$

19. (c) 1 ——— 2

↑ P ↑ S1

Rate $= \frac{S1 \times 100}{P \times T} = \frac{2 \times 100}{1 \times 36} = 5.55\%$

20. (a) I → $30000 \times \frac{10}{100} = 3000$

II → $30000 \times \frac{20}{100} + 3000 \times \frac{20}{100} = 6600$

III → $30000 \times \frac{30}{100} + 9600 \times \frac{30}{100}$

= 9000 + 2880 = 11880

Total CI = 3000 + 6600 + 11880=21480

21. (a)

Length of faster train $= 26 \times \frac{5}{18} \times 72$

= 520 metres

22. (a)

Lert 7 consecutive numbers → 5, 7, 9, 11, 13, 15, 17

Average A ⇒ 11

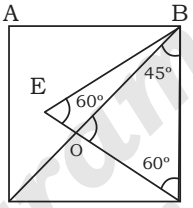
New peries ⇒ 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23

New Average ⇒ $\frac{11+13}{2} = \frac{24}{2} = 12$

⇒ 11 + 1

⇒ A + 1

23. (b)



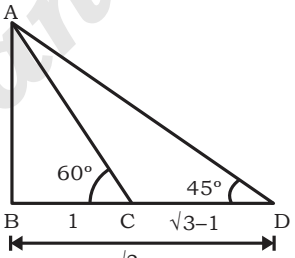
$\angle BEC = 60°$ (One angle of equilateral Δ)

$\angle OBC = 45°$

$\angle EBO = 60° - 45° = 15°$

$\therefore \angle BOC = 60° + 15° = 75°$ (Exterior angle)

24. (a)



CD = 4(√3 – 1) m/s × 60s

= 240(√3 – 1)m

∴√3 – 1 unit → 240(√3 – 1)m

1 unit → $\frac{240(\sqrt{3}-1)}{\sqrt{3}-1} = 240$m

AB =√3 unit → √3 × 240 = 240√3

Height of light house = 240√3m

25. (a)

Let the speed of longer train = x km/hr

Relative speed = (x + 60) km/hr

We know –

$\frac{\text{Distance}}{\text{Time}} = \text{Speed}$

$\Rightarrow \frac{(400+300)\text{m}}{15\text{s}} = (x+60)\text{km/hr}$

$\Rightarrow \frac{700}{15} \times \frac{18}{5} = x + 60$

$\Rightarrow 168 = x + 60$

$\Rightarrow x = 168 - 60$

$\Rightarrow x = 108$ km/hr