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Directions (1–5): This data is regarding total number of employees working in Administration (admin), Operations (Ops.) and other departments of corporate divisions of Companies A and B.

The total number of employees working in both the companies together is 4800. The respective ratio of number of employees in Companies A and B is 5 : 7. Each employee works in only one of the 3 Departments
i.e. "ops", "Admin" and "others".
In company A, 70% of the total employees are males. 60% of the total male employees work in 'Ops' out of the remaining male employees, $\frac{1}{8}$ th work in 'Admin'. Out of the total female employees, 24% work in 'Admin' and $\frac{5}{8}$th of the remaining female employees work in 'Ops'.
In company B, 80% of the total employees are males. 65% of the total male employees work in 'Ops'. Number of male employees who work in other departments in Company B is 20% more than the male employees who work in 'Other Departments' in company A. Number of female employees who work in Ops in Company B are less than the number of male employees who work for 'Ops' in the same company by 75%. Out of the remaining female employees, $\frac{1}{4}$ work in 'Admin'.

Q1. What per cent of the total number of male employees in company A work in 'other' departments?
(a) 45   (b) 25   (c) 30
(d) 35   (e) 40

Q2. What per cent the total number of female employees in company B work in administration department?
(a) 18.5   (b) 8.75   (c) 14
(d) 16   (e) 19

Q3. What is the total number of female employees who work on Ops in Company A and B together?
(a) 681   (b) 781   (c) 689
(d) 649   (e) 788

Q4. What is the difference between the average number of males working in 'Admin' in both the companies together and average number of females working 'Other Departments' in both the companies together?
(a) 26   (b) 36   (c) 16
(d) 24   (e) 14

Q5. In company B, what is the respective ratio between the total number of employees (both male and female) who work in 'Admin' and the total number of employees (both male and female) who work in 'Other Department' in the same company?

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

(d) 3 : 5   (e) 1 : 5

Solution(1-5):

For company A , Total = 2000

	Male (1400)	Female (600)
Ops	840	285
Admin	70	144
Other	490	171

For Company B –, Total = 2800

	Male (2240)	Female (560)
Ops	1456	364
Admin	196	49
Other	588	147

S1. Ans.(d)

Sol. Required % = $\frac{490}{1400} \times 100 = 35\%$

S2. Ans.(b)

Sol. Required % = $\frac{49}{560} \times 100 = 8.75\%$

S3. Ans.(d)

Sol. Required no. of female = 285 + 364 = 649

S4. Ans.(a)

Sol. Required difference = $\frac{171+147}{2} - \frac{70+196}{2}$

= 159 – 133

= 26

S5. Ans.(b)

Sol. Required Ratio = (196 + 49) : (588 + 147)

= 245 : 735

= 1 : 3

Directions (6-10): Study the table and answer the given questions.

Data related to Human Resource Dept. of a multinational company (X) which has 145 offices across 8 countries.

Countries	Offices	Total Employees	Respective Ratio of male & female employees	% of post graduate
A	16	2568	5 : 7	75
B	18	2880	11 : 5	65
C	14	2310	10 : 11	40
D	22	3575	3 : 2	60
E	13	2054	7 : 6	50
F	17	2788	20 : 21	75
G	24	3720	8 : 7	55
H	21	3360	8 : 6	80

Q6. The number of male post graduate employees in country H is 1800. If number of female post graduates increase by 50% in the next year, what % of female employees in that particular country is post graduate? (Given that all other data remain same)
(a) 76.8%   (b) 74%   (c) 92.5%
(d) 90%   (e) 80%

Q7. In which country, is the percentage of women employees to number of employees (both male & female) is ranked third lowest?
(a) E   (b) B   (c) H
(d) F   (e) A

Q8. What is the ratio between total number of male employees in countries B and H together and total number of post graduate employees in same countries?
(a) 76 : 65   (b) 86 : 85   (c) 75 : 76
(d)65 : 76   (e)12 : 33

Q9. What is the difference between average number of post graduate employees in countries A, B and D together and average number of post graduate employees in countries F, G and H together?
(a) 294   (b) 282   (c) 284
(d) 280   (e) 200

Q10. Which country has the 2nd highest number of average employees per office?
(a) D   (b) H   (c) G
(d) A   (e) F

S6. Ans.(c)
Sol.

Graduate = $3360 \times \frac{4}{5} = 2688$

Female graduate = $2688 - 1800 = 888$

Female employee = $3360 \times \frac{6}{14} = 1440$

Female graduate next year = $888 \times \frac{3}{2} = 1332$

% of female graduate $= \frac{1332}{1440} \times 100 = 92.5\%$

S7. Ans.(c)
Sol.

$A \Rightarrow \frac{7}{12} \times 100 = 58.34\%$ $\qquad$ $B \Rightarrow \frac{5}{16} \times 100 = 31.25\%$

$C \Rightarrow \frac{11}{21} \times 100 = 52.4\%$ $\qquad$ $D \Rightarrow \frac{2}{5} \times 100 = 40\%$

$E \Rightarrow \frac{6}{13} \times 100 = 46.15\%$ $\qquad$ $F \Rightarrow \frac{21}{41} \times 100 = 51.22\%$

$G \Rightarrow \frac{7}{15} \times 100 = 46.67\%$ $\qquad$ $H \Rightarrow \frac{6}{14} \times 100 = 42.86\%$

Clearly, H is the third lowest.

S8. Ans.(d)
Sol.

$$\frac{\frac{11}{16} \times 2880 + \frac{8}{14} \times 3360}{2880 \times \frac{65}{100} + 3360 \times \frac{4}{5}} = \frac{1980 + 1920}{1872 + 2688} = \frac{3900}{4560}$$

= 65 : 76

S9. Ans.(a)
Sol.

$A \Rightarrow 2568 \times \frac{3}{4} = 1926$ $\qquad$ $F \Rightarrow 2788 \times \frac{3}{4} = 2091$

$B \Rightarrow 2880 \times \frac{65}{100} = 1872$ $\qquad$ $G \Rightarrow 3720 \times \frac{55}{100} = 2046$

$D \Rightarrow 3575 \times \frac{3}{5} = 2145$ $\qquad$ $H \Rightarrow 3360 \times \frac{4}{5} = 2688$

A + B + D = 5943 $\qquad$ F + G + H = 6825

Diff. = 6825 – 5943 = 882

Avg. $= \frac{882}{3} = 294$

S10. Ans.(e)
Sol.

$A \Rightarrow \frac{2568}{16} = 160.5$ $\qquad$ $B \Rightarrow \frac{2880}{18} = 160$ $\qquad$ $C \Rightarrow \frac{2310}{14} = 165$

$D \Rightarrow \frac{3575}{22} = 162$ $\qquad$ $E \Rightarrow \frac{2054}{13} = 158$ $\qquad$ $F \Rightarrow \frac{2788}{17} = 164$

$H \Rightarrow \frac{3360}{21} = 160$ $\qquad$ $G \Rightarrow \frac{3720}{24} = 155$

2nd highest avg. no. of employees per office = F

Directions (11-15): The table given below shows the no. of units produced of six different items by a company, the mark-up % on each unit and the discount offered on the marked-up price of each unit.

The cost price of all the items is same and fixed at Rs 100.
The line graph shows the estimated percentage of items sold by the company on the normal discounted price.
The bar graph shows the percentage of cost price at which the company sold the remaining no. of items.(means the company sold the remaining no. of items at a price lower than the cost price)

	A	B	C	D	E	F
Production Unit	200	160	80	140	180	150
Mark Up %	50	60	80	40	60	45
Discount %	20	25	40	15	20	20
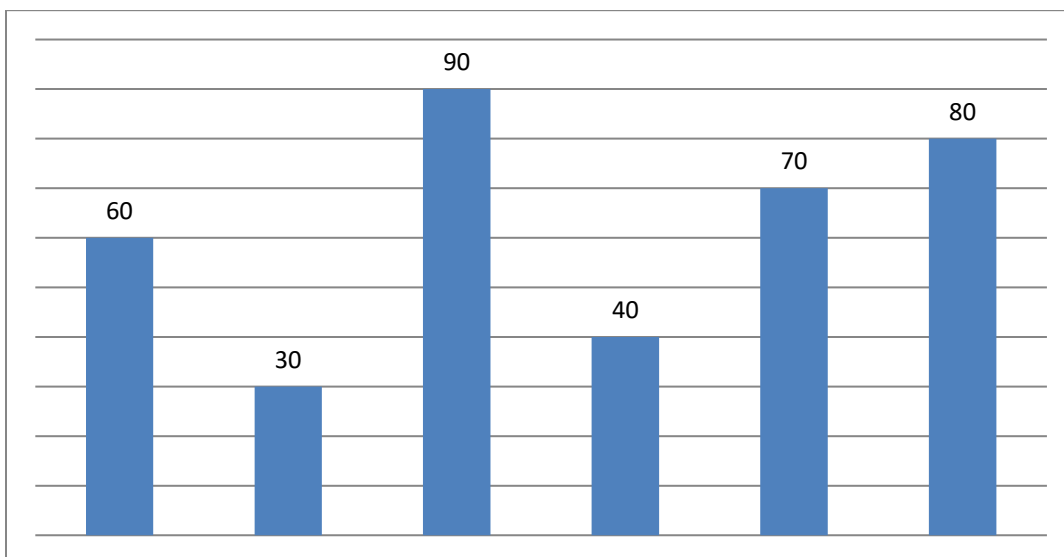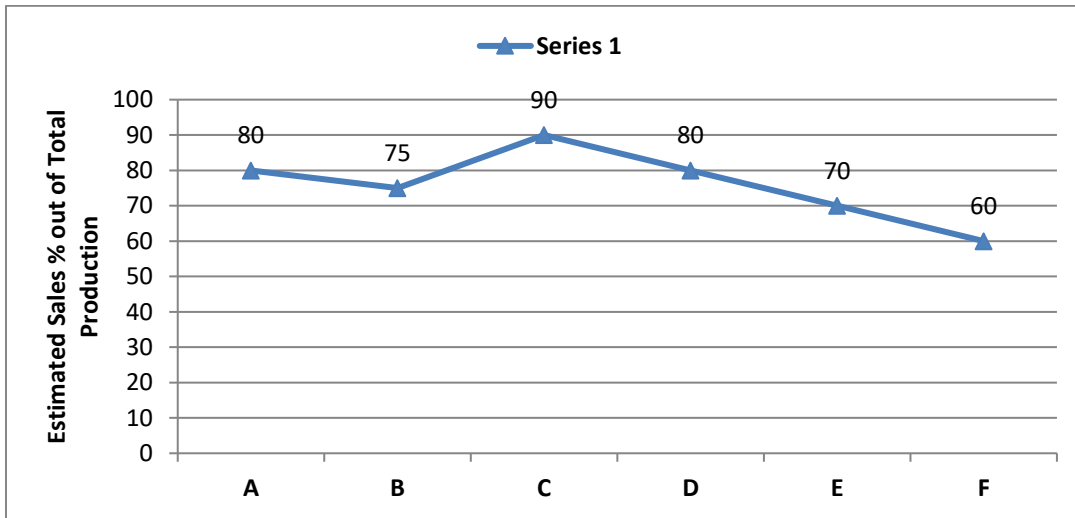
Q11. Find profit % of A and B together in year 2015if it is known that B sold only 90% of goods of what he actually estimated to sell in year 2015.
(a) 0.33%   (b) 0.44%   (c) 0.55%
(d) 0.60%   (e) None of these

Q12. In year 2016 E has increased his discount % by 10 basis point and which lead to increasein its estimated salesby 20 basis point. Apart from that everything else remains same then what is the difference in profit in year 2015 to 2016.
(a) 504   (b) 508   (c) 512
(d) 516   (e) 520

Q13. In year 2016 C decreased the discount % by 10 basis point due to which its sales reduced to 80% of total production of year 2015. By how much % profit will increase or decrease in 2016 compare to year 2015. (Approximately)
(a) Increased by 200%   (b) Decreased by 210%   (c) Increased by 203%
(d) Increased by 207%   (e) Decreased by 207%

Q14. What is the difference between the absolute profit of A, B and C together and D, E and F together in year 2015
(a) 750   (b) 800   (c) 900
(d) 1000   (e) None of these

Q15. What is the profit % of all the companies together in year 2015. (Approximately)
(a) 4.9%   (b) 4.6%   (c) 5.1%
(d) 4.7%   (e) 5.4%

S11. Ans.(a)
Sol.
A's selling price per unit $= \frac{100 \times 150}{100} \times \frac{80}{100} = 120$
A's sales in unit $= 200 \times \frac{80}{100} = 160$
A's SP of 160 Unit $= 160 \times 120 = 19200$
A's SP of Remaining unit $= (200 - 160) \times 100 \times \frac{60}{100} = 2400$
B's Selling price per unit $= \frac{100 \times 160}{100} \times \frac{75}{100} = 120$
B's Sales in Unit $= \left(160 \times \frac{75}{100}\right) \times \frac{90}{100} = 108$
B's total SP $= 108 \times 120 + \left[(160 - 108) \times 100 \times \frac{30}{100}\right] = 14520$
Total SP (A + B) $= 19200 + 2400 + 14520 = 36120$
Total CP (A + B) $= (200 + 160) \times 100 = 36000$
Required Profit % $= \left(\frac{36120 - 36000}{36000}\right) \times 100 = 0.33\%$

S12. Ans.(a)

Sol.

E's total SP in year 2016

$$= \left[\left(100 \times \frac{160}{100}\right) \times \frac{70}{100}\right] \times \left(180 \times \frac{90}{100}\right) + \left(100 \times \frac{70}{100} \times \frac{180 \times 10}{100}\right)$$

$$= 19404$$

E's total SP in year 2015

$$= \left[\left(100 \times \frac{160}{100}\right) \times \frac{80}{100}\right] \times \left(180 \times \frac{70}{100}\right) + \left(100 \times \frac{70}{100} \times \frac{(180 \times 30)}{100}\right)$$

$$= 19908$$

Required answer $= 19908 - 19404$

$$= 504$$

S13. Ans.(c)

Sol.

SP of C in year 2016

$$= \left[\left(100 \times \frac{180}{100}\right) \times \frac{70}{100}\right] \times \left(80 \times \frac{80}{100}\right) + \left(80 \times \frac{20}{100}\right) \times \left(100 \times \frac{90}{100}\right)$$

$$= 9504$$

Profit of C in year 2016 $= 9504 - 80 \times 100$

$$= 1504$$

SP of C in year 2015 $= \left[\left(100 \times \frac{180}{100}\right) \times \frac{60}{100}\right] \times \left(80 \times \frac{90}{100}\right) + \left(80 \times \frac{10}{100}\right) \times \left(100 \times \frac{90}{100}\right)$

$$= 8496$$

Profit of C in year 2015 $= 8496 - 80 \times 100$

$$= 496$$

Required % $= \frac{1504 - 496}{496} = 203.22\% \sim 203\%$

S14. Ans.(c)

Sol.

A's SP in year 2015

$$= \left(200 \times \frac{80}{100}\right) \times \left(100 \times \frac{150}{100} \times \frac{80}{100}\right) + \left(200 \times \frac{20}{100}\right) \times \left(100 \times \frac{60}{100}\right)$$

$$= 21600$$

B's SP in year 2015 $=$

$$= \left(160 \times \frac{75}{100}\right) \times \left(100 \times \frac{160}{100} \times \frac{75}{100}\right) + \left(160 \times \frac{25}{100}\right) \times \left(100 \times \frac{30}{100}\right)$$

$$= 15600$$

C's SP in year 2015 s

$$= \left(80 \times \frac{90}{100}\right) \times \left(100 \times \frac{180}{100} \times \frac{60}{100}\right) + \left(80 \times \frac{10}{100}\right) \times \left(100 \times \frac{90}{100}\right)$$

$$= 8496$$

Total (A + B + C) = 21600 + 15600 + 8496 = 45696

Profit = 45696 − 20000 − 16000 − 8000 = 1696

D's SP in year 2015 = $\left(140 \times \frac{80}{100}\right) \times \left(100 \times \frac{140}{100} \times \frac{85}{100}\right) + \left(140 \times \frac{20}{100}\right) \times \left(100 \times \frac{40}{100}\right)$

= 14448

E's SP in year 2015 = $\left(180 \times \frac{70}{100}\right) \times \left(100 \times \frac{160}{100} \times \frac{80}{100}\right) + \left(180 \times \frac{30}{100}\right) \times \left(100 \times \frac{70}{100}\right)$

= 19908

F's SP in year 2015 = $\left(150 \times \frac{60}{100}\right) \times \left(100 \times \frac{145}{100} \times \frac{80}{100}\right) + \left(150 \times \frac{40}{100}\right) \times \left(100 \times \frac{80}{100}\right)$

= 15240

Total SP (D + E + F) = 1448 + 19908 + 15240

= 49596

Profit = 49596 − 14000 − 18000 − 15000

= 2596

Required answer = 2596 − 1696

= 900

S15. Ans.(d)
Sol.
total profit = 2596+ 1696

= 4292

Total CP = 20000+ 16000+ 8000 + 14000 + 18000+ 15000

= 91000

Required profit % = $\frac{4292}{91000} \times 100$

= 4.716 ~ 4.72%

Direction (16-20): Study the graph to answer the questions.

Total investment (in Rs. thousand) of Gaurav and Rishabh in 6 schemes (M, N, O, P,Q and R) investment
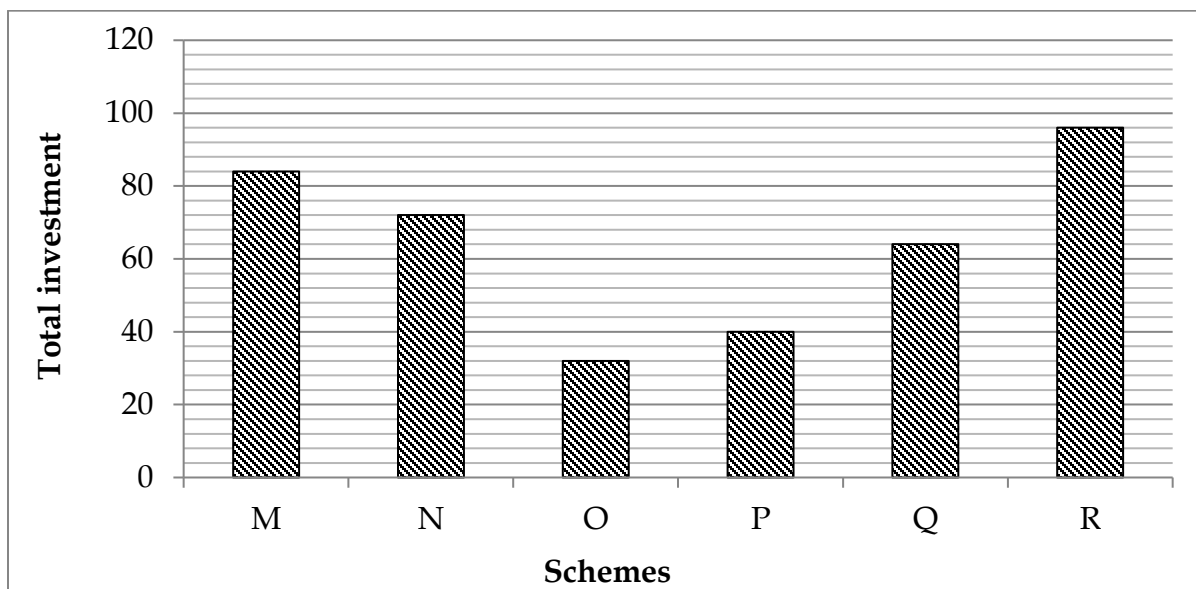
Percentage of Gaurav's Investment out of total investment
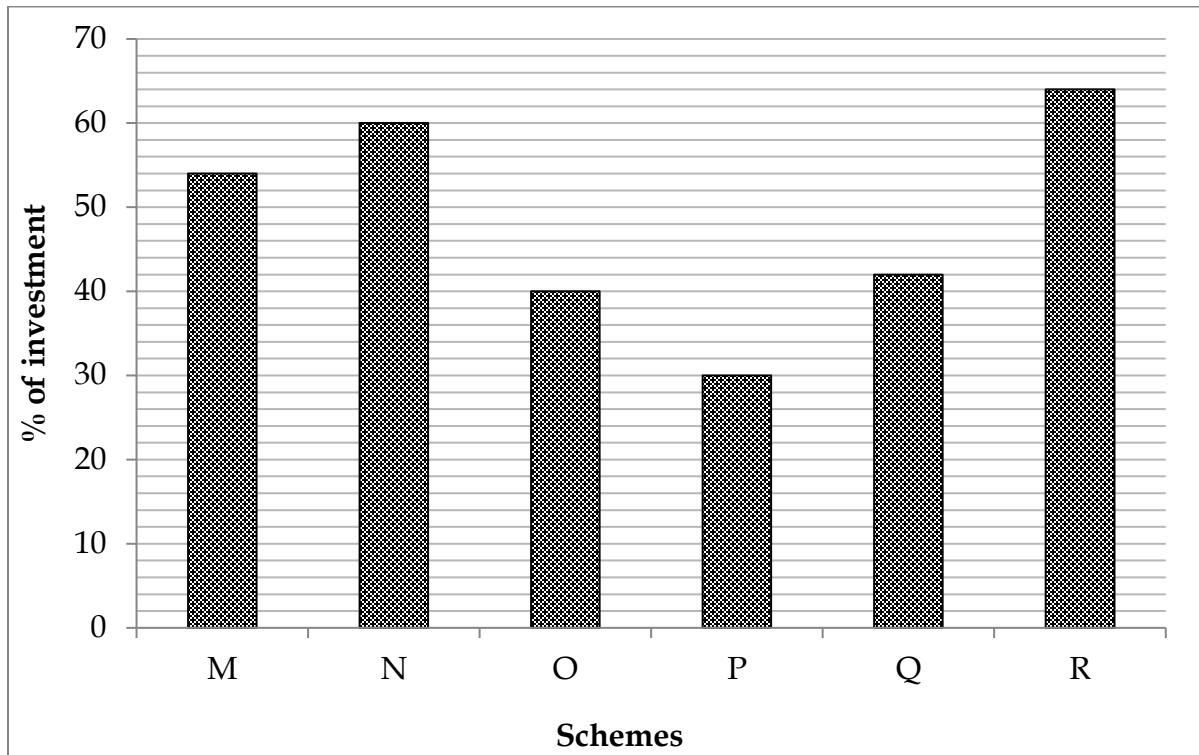
Q16. Scheme M offers simple interest at a certain rate of interest (per cent per annum). If the difference between the interest earned by Gaurav and Rishabh from scheme M after 4 yr is Rs. 4435.20, what is the rate of interest (per cent per annum)?
(a) 17.5   (b) 18   (c) 16.5
(d) 20   (e) 15

Q17. What is the respective ratio between total amount invested by Gaurav in schemes O and Q together and total amount invested by Rishabh in the same scheme together?
(a) 31 : 44   (b) 31 : 42   (c) 27 : 44
(d) 35 : 48   (e) 29 : 38

Q18. If scheme O offers compound interest (compounded annually) at 12% per annum, then what is the difference between interest earned by Gaurav and Rishabh from scheme O after 2 yr?
(a) Rs. 1628.16   (b) Rs. 1584.38   (c) Rs. 1672.74
(d) Rs. 1536.58   (e) Rs. 1722.96

Q19. Rishabh invested in scheme R for 4 yr. If scheme R offers simple interest at 7% per annum for the first two years and then compound interest at 10% per annum (compound annually) for the 3rd and 4th year, then what will be the interest earned by Rishabh after 4 yr?
(a) Rs. 13548.64   (b) Rs. 13112.064   (c) Rs. 12242.5
(d) Rs. 12364   (e) Rs. 11886

Q20. Amount invested by Gaurav in scheme S is equal to the amount invested by him in scheme N. The rate of interest per annum of schemes S and N are same. The only difference is scheme S offers compound interest (compounded annually), whereas the scheme N offers simple interest. If the difference between the interest earned by Gaurav from both the schemes after 2 yr is Rs. 349.92, then what is the rate of interest?

(a) 9%   (b) 5%   (c) 13%

(d) 11%   (e) 7%

S16. Ans.(c)
Sol.
Amount invested by Gaurav in scheme M = 54% of 84000
= Rs. 45360
∴ Amount invested by Rishabh in scheme M = 84000 − 45360
= Rs. 38640
Let the required rate be r% per annum. Then,
$$= \frac{45360 \times r \times 4}{100} - \frac{38640 \times r \times 4}{100} = 4435.20$$
⇒6720 × r × 4 = 443520
⇒ r = 16.5%

S17. Ans.(a)
Sol.
Required ratio = (Total amount invested by Gaurav in schemes O and Q together) : (Total amount invested by Rishabh in schemes O and Q together)
= (40% of 32000 + 42% of 64000) : (60% of 32000 + 58% of 64000)
= 39680 : 56320 = 31 : 44

S18. Ans.(a)
Sol.
Difference of amount invested by Gaurav and Rishabh in Scheme O = 60% of 32000 − 40% of 32000 = 20% of 32000
= Rs. 6400
∴ Required difference in their interest
$$= 6400 \left[\left(1 + \frac{12}{100}\right)^2 - 1 \right] = 6400 \times 0.2544 = Rs.\,1628.16$$

S19. Ans.(b)
Sol.
Amount invested by Rishabh in investment R
= (100 − 64)% of 96000 = 36% of 96000 = Rs. 34560
Then, total interest earned by Rishabh after 4 year
$$= \frac{34560 \times 7 \times 2}{100} + 21\% \text{ of } (34560 + SI\,offirst\,2\,years)$$
= 4838.40 + 8273.664 = Rs. 13112.064

S20. Ans.(a)
Sol.
Amount invested by Gaurav in each of scheme S and N
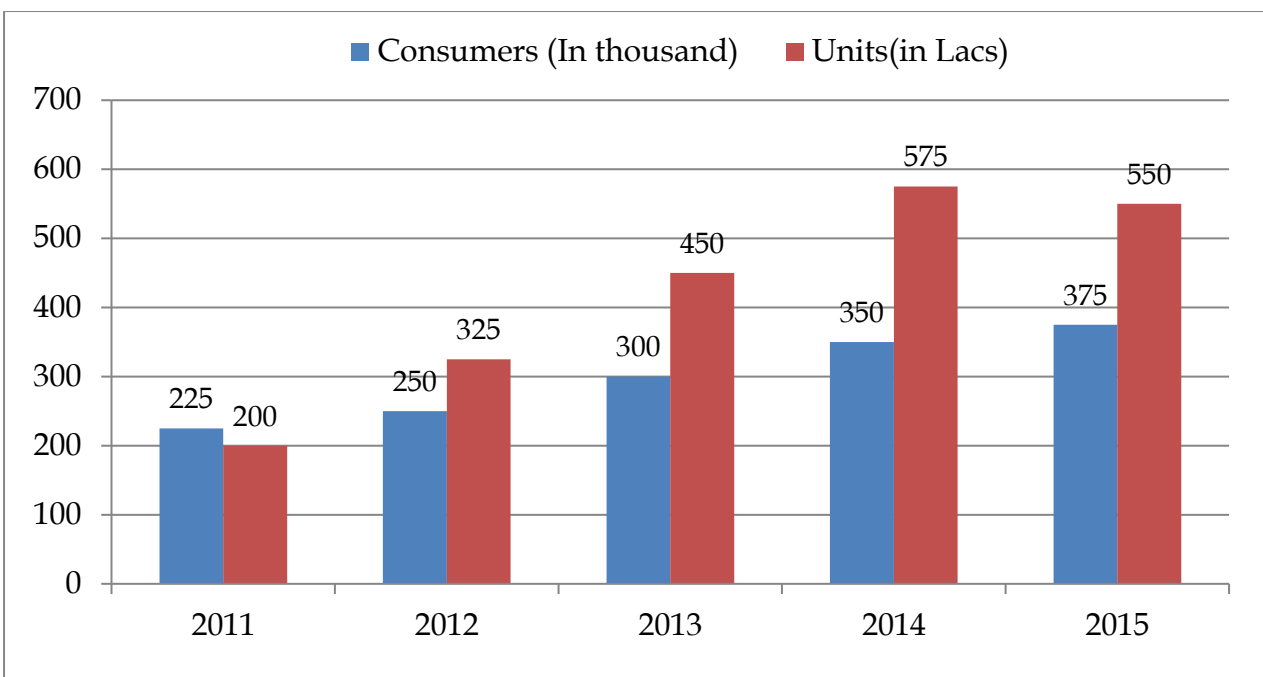= 60% of 72000 = 43200
Let the rate of interest be r% per annum.
Then, according to the question,

$$349.92 = \frac{43200 \times r^2}{100^2}$$

$or, r^2 = 81$

∴r = 9%

Directions (21–25): The graph suggests the no. of consumers and consumption of electricity units in five years. Electricity units are given in Lacs while the no. of consumers aregiven in thousand. Read the graph and answer the question.

Q21. What is the ratio of electricity consumption per consumer in 2012 to the same in 2015?
(a) 39 : 44   (b) 77 : 79   (c) 11 : 19
(d) 9 : 7   (e) None of the above

Q22. If no of consumers in 2016 is 120% more than in 2011 while the consumption remain same as in 2015, then what will be the impact of no of units consumed by a consumer in 2016 when compared to electricity consumption per consumer in 2015?
(a) + 42 units   (b) + 36 Units   (c) – 36units
(d) – 42 units   (e) None of the above

Q23. Electricity consumption in 2012 will be approximately how many times the total no. of consumer all over the years?

(a) 3   (b) 21.5   (c) 2.5

(d) 4   (e) None of the above

Q24. Total no of units in 2011 and 2013 are approximately what % more or less than Total units in 2012 & 2014 together?

(a) 20% more   (b) 24% more   (c) 29% less

(d) 28% less   (e) None of the above

Q25. In which of the following year, the ratio of unit consumtion to the no. of consumers is maximum?

(a) 2011   (b) 2015   (c) 2014

(d) 2013   (e) 2012

S21. Ans.(a)

Sol.

$$\frac{\frac{325}{250}}{\frac{550}{375}} = \frac{325 \times 375}{250 \times 550} = 39 : 44$$

S22. Ans.(c)

Sol.

2016 : No. of consumers = $\frac{220}{100}[225] = 495$ thousand

Electricity consumption = 550 Lacs

∴ Electricity consumption per consumer = $\frac{550 \times 100000}{495 \times 1000}$

= 111 units per consumer

2015 : Electricity consumption per consumer = $\frac{550 \times 100000}{375000}$

≈ 147 units per consumer

Hence, the Impact is reduction of 36 units per consumer

S23. Ans.(b)

Sol.

Total consumer all over the year = 225 + 250 + 300 + 350 + 375 = 1500 thousand

Desired value = $\frac{325 \times 100000}{1500000}$ = 21.5 times approx

S24. Ans.(d)

Sol.

Total units in 2011 and 2013 = 650 Lacs

Total units in 2012 and 2014 = 900 Lacs

Desired value = $\frac{250}{900} \times 100 \approx 28\%$ approx

S25. Ans.(c)
Sol. It is clear from the graph that unit consumption is highest in 2014 while consumers-electricity units difference is maximum as well. Hence, Ratio of unit consumption to the number of consumers is maximum in 2014.

Directions (26-30): The following information is about performance of Akhilesh in SBI PO mains exam. Read the information carefully and answer the following question.

The exam consists of 200 marks, with 5 sections i.e. Reasoning, quant, English, G.A., Computers. Akhilesh attempted 22 questions in Reasoning with an accuracy of $77\frac{3}{11}\%$. Each question of reasoning consists of 2 marks with a negative marking of 25%. (if right question is of 2 mark, then 0.5 mark will be deducted for each wrong answer).

Each section of the exam have the 25% of negative marking for each wrong question. The total number of questions in reasoning is 30. Each question of computer consists of $\frac{1}{2}$ marks and maximum marks in computer are 10. Total 16 questions are attempted by Akhileshin computer with the ratio of right questions to wrong questions 3 : 1.

The number of questions in English is equal to maximum marks of English. Akhilesh attempted 26 questions with 50% accuracy. The number of questions attempted in English is 65% of the total number of questions in English.

GA section consists of 40 questions with each question 0.75 marks. Akhilesh attempted 23 questions out of which 8 are wrong. Quant section contains 40 questions out of which Akhilesh attempted 35 questions and got 52.5 marks.

Q26. Another student arunoday attempted 70% questions in the same exam, then find the number of questions left by arunoday.
(a) 119   (b) 68   (c) 51
(d) 65   (e) None of these

Q27. Find the marks obtained by Akhilesh in GA.
(a) 8.75   (b) 9.25   (c) 9.75
(d) 10.75   (e) None of these

Q28. The number of correct questions in reasoning is how much more than the number of incorrect questions in the same subject?
(a) 12   (b) 7   (c) 18
(d) 9   (e) None of these

Q29. Find the total marks obtained by Akhilesh in the exam.
(a) 101   (b) 105   (c) 109
(d) 102   (e) None of these

Q30. Find the total number of incorrect questions attempted by Akhilesh in the exam.
(a) 27　　　　　　　　　　(b) 15　　　　　　　　　　(c) 28
(d) 18　　　　　　　　　　(e) None of these

S26. Ans.(c)
Sol. Total number of question = 170, no of questions left= 170 – 119=51

S27. Ans.(c)
Sol. Marks in GA = 9.75

S28. Ans.(a)
Sol. 17 – 5 = 12

S29. Ans.(c)
Sol. Total marks obtained = 109

S30. Ans.(e)
Sol. Total number of incorrect questions = 122 – 85=37

Directions (31-35): Study the following graph carefully and answer the questions given below it.
Percentage of profit earned by two companies Sony and H.P. over the given years

$$\% \, Profit \; = \frac{Income - Expenditure}{Expenditure} \times 100$$
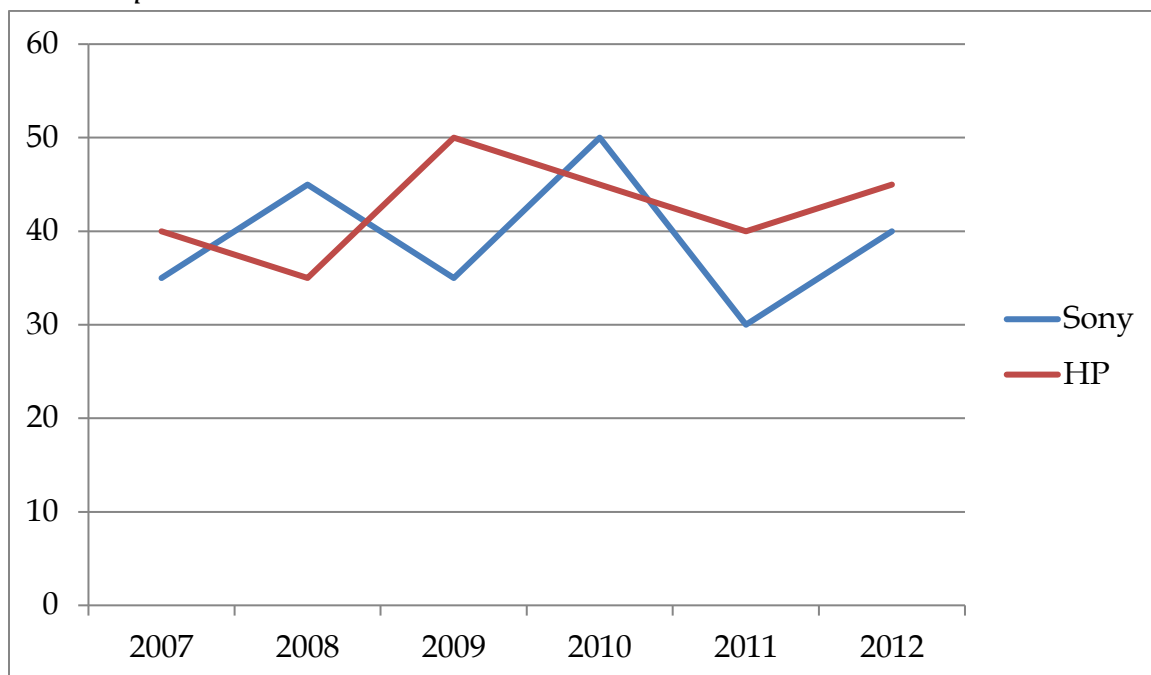
Q31. Expenditure of Company HP in 2008 and 2009 are Rs. 12 lakhs and Rs. 14.5 lakh respectively. What was the total income of Company B in 2008 and 2009 together (in lakh rupees)?

(a)35 lac   (b)37.65 lac   (c)40 lac

(d)37.95 lac   (e)None of these

Q32. Ratio of expenditure of companies Sony and HP in 2011 was 3 : 4 respectively. What was the respective ratio of their incomes in 2011?

(a)2 : 3   (b)23 : 37   (c)43 : 56

(d)29 : 46   (e)39 : 56

Q33. Total expenditure of Company Sony in all the years together was 82.5 lakhs. What was the total income of the Company in all the years together?

(a)38 lac   (b)40 lac   (c)45 lac

(d) Cannot determined   (e)None of these

Q34. If the expenditures of Companies Sony and HP in 2012 were equal and the total income of the two companies was Rs. 5.7 lakh, What was the total expenditure of the two companies in 2012?

(a)4 lac   (b)5 lac   (c)6 lac

(d)8 lac   (e)10 lac

Q35. If the income of Company HP in 2009 and 2010 were in the ratio of 2 : 3 respectively. What was the respective ratio of expenditure of that Company in these two years?

(a) 2 : 3   (b)4 : 5   (c)29 : 45

(d)39 : 55   (e)None of these

S31. Ans.(d)

Sol.

Income of HP = I_1 in 2008

$\therefore 35 = \dfrac{I_1 - 12}{12} \times 100$

$I_1 = $ Rs. 16.2 L

In 2009, Let Income = I_2

$\therefore 50 = \dfrac{I_2 - 14.5}{14.5} \times 100$

$I_2 = 21.75$ L

$\therefore$ total income = $21.75\,L + 16.2\,L = 37.95\,L$

S32. Ans.(e)
Sol.
Let the respective expenditures of both Sony and HP be Rs. $3x$ and Rs. $4x$ lakhs.

$\therefore I_{sony}$ in 2011 $\Rightarrow 30 = \dfrac{I_1 - 3x}{3x} \times 100$

or, $I_1 = 3.9x$

$Again, I_{HP}$ in 2011 $\Rightarrow 40 = \dfrac{I_2 - 4x}{4x} \times 100$

$\Rightarrow I_2 = 5.6x$

Desired ratio $\Rightarrow I_{sony} : I_{HP} = 3.9x : 5.6x$

$= 39 : 56$

S33. Ans.(d)
Sol. It can't be determined as data given are inadequate.

S34. Ans.(a)
Sol.
Let expenditure of both Sony and HP in 2012 be Rs. x lakhs & their respective incomes be Rs. I_1 & I_2 lakhs.

$\therefore$ Profit% for Sony = 40

& Profit% for HP = 45

$\therefore 40 = \dfrac{I_1 - x}{x} \times 100$ ...(i)

$\& 45 = \dfrac{I_2 - x}{x} \times 100$ ...(ii)

From (i) and (ii)

$x = $ Rs. 2L

$\therefore$ Total expenditure $= 2 \times 2 = $ Rs. 4 lakh

S35. Ans.(c)
Sol.
Let the income be Rs. $2x$ and Rs. $3x$ lakhs respectively in 2009 and 2010 for HP.

$\therefore$ In 2009,

$50 = \dfrac{2x - E_1}{E_1} \times 100$

$\Rightarrow 1.5\, E_1 = 2x$
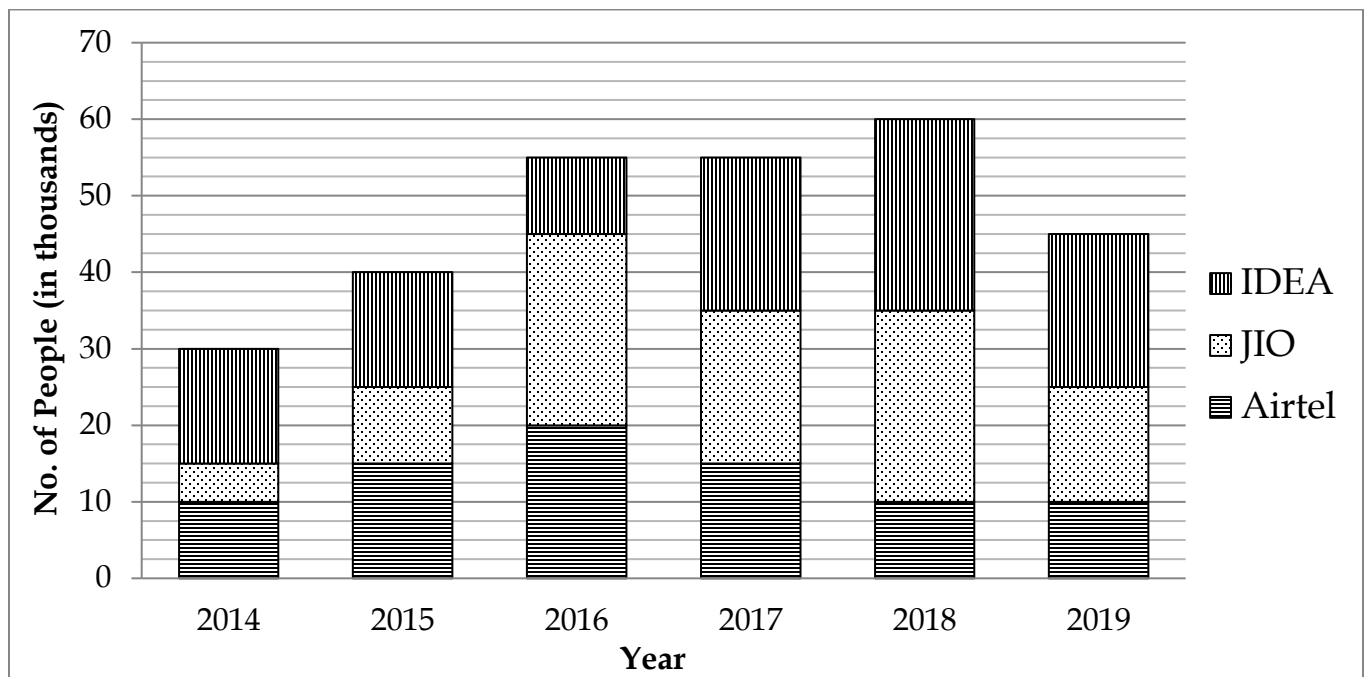
$\Rightarrow E_1 = \dfrac{2x}{1.5} \; Lakh$

In 2010,

$45 = \dfrac{3x - E_2}{E_2} \times 100$

$\Rightarrow E_2 = \dfrac{3x}{1.45}$

$\therefore \dfrac{2x}{1.5} : \dfrac{3x}{1.45} = 29 : 45.$

Directions (36-40): Study the given graph carefully to answer the questions that follow:

Q36. What is the average number of people using mobile service of JIO for all the years together?

(a) $16\frac{2}{3}$

(b) $14444\frac{1}{6}$

(c) $16666\frac{2}{3}$

(d) $14\frac{1}{6}$

(e) None of these

Q37. The total number of people using all the three mobile services in the year 2017 is what per cent of the total number of people using all the three mobile services in the year 2018?(rounded off to two digits after decimal)

(a) 89.72

(b) 93.46

(c) 88.18

(d) 91.67

(e) None of these

Q38. The number of people using mobile service of Idea in the year 2016 forms approximately what per cent of the total number of people using all the three mobile services in that year?

(a) 18

(b) 26

(c) 11

(d) 23

(e) 29

Q39. What is the ratio of the number of people using mobile service of AIRTEL in the year 2015 to that of those using the same service in the year 2014?

(a) 8 : 7

(b) 3 : 2

(c) 19 : 13

(d) 15 : 11

(e) None of these

Q40. What is the total number of people using mobile service of JIO in the years 2018 and 2019 together?

(a) 35,000   (b) 30,000   (c) 45,000

(d) 25,000   (e) None of these

S36. Ans.(c)

Sol. Average $= \frac{1}{6} \times [5 + 10 + 25 + 20 + 25 + 15] \times 1000$

$= \frac{100000}{6} = 16666\frac{2}{3}$

S37. Ans.(d)

Sol. Required % $= \frac{55}{60} \times 100 = 91.67\%$

S38. Ans.(a)

Sol. Required % $= \frac{10}{55} \times 100 = 18\%$ (approx.)

S39. Ans.(b)

Sol. Required Ratio = 15 : 10 = 3 : 2

S40. Ans.(e)

Sol. Required no. of people = (25 + 15) × 1000 = 40000

Directions(41-45): Study the given information carefully to answer the questions that follow:

An organization consists of 2400 employees working in different departments, viz HR, Marketing, IT, Production and Accounts. The ration of male to female employees in the organization is 5 : 3. Twelve percent of the males work in the HR department. Twenty four percent of the females work in the Accounts department. The ratio of males to females working in the HR department is 6:11. One-ninth of the females work in the IT department. Forty two percent of the males work in the Production department. The number of females working in the production department is 10 percent of the males working in the same. The remaining females work in the marketing department. The total number of employees working in the IT department is 285. Twenty two percent of the males work in the Marketing and the remaining work in the Accounts department.

Q41. The number of males working in the IT department forms approximately what percent of the total number of males in the organization?

(a) 5   (b) 12   (c) 21

(d) 4   (e) 18

Q42. What is the difference between males in Accounts department and Males in IT department?

(a) 10   (b) 15   (c) 18

(d) 16   (e) None of these

Q43. The total number of employees working in the Accounts department forms what percent of the total number of employees in the organization?

(a) 19.34   (b) 16.29   (c) 11.47

(d) 23.15   (e) None of these

Q44. The number of females working in the Production department forms what percent of the total number of females in the organization?

(a) 7   (b) 2   (c) 4

(d) 15   (e) None of these

Q45. What is the total number of females working in the HR and Marketing departments together?

(a) 363   (b) 433   (c) 545

(d) 521   (e) None of these

Solutions (41–45):

Total no. of employees = 2400

No. of males = $\frac{5}{8} \times 2400 = 1500$

& No. of females = 900

Males (HR) = 12% of 1500 = 180

Females (HR) = $\frac{11}{6} \times 180 = 330$

∴ Females (Accounts) = 24% of 900 = 216

& Females (IT) = $\frac{1}{9} \times 900 = 100$

No. of Males in IT = 285 – 100 = 185

∴ No. of males in Production = 42% of 1500

= 630

Females (Production) = 10% of 630 = 63

Males (Marketing) = $\frac{22 \times 1500}{100} = 330$

No. of females in Marketing = (900 – 330 – 216 – 100 – 63)

= 191

No. of Male in Accounts = 1500 – 180 – 185 – 630 – 330

= 175

S41. Ans.(b)

Sol. Desired % = $\frac{185}{1500} \times 100 = 12.33\% \approx 12\%$

S42. Ans.(a)

Sol. No. of males in accounts = 175

No. of males in IT = 185

Difference = 10

S43. Ans.(b)

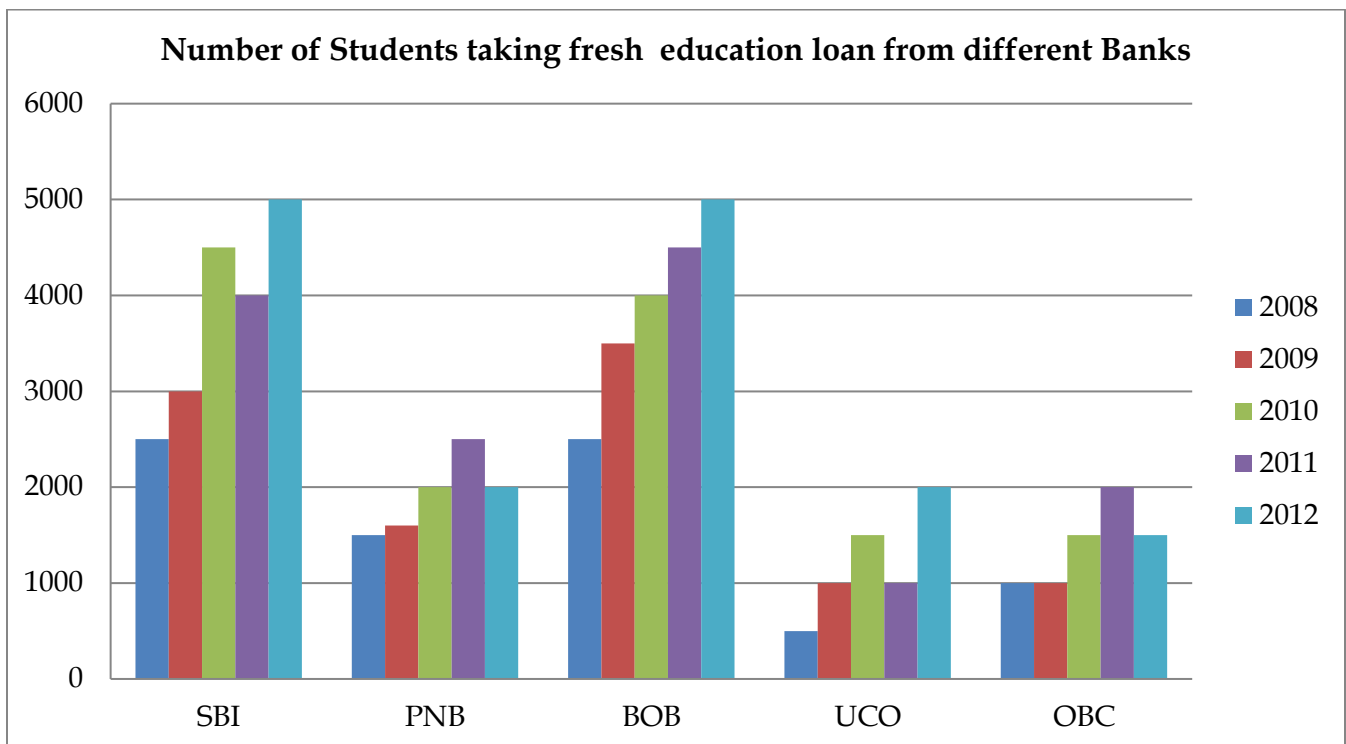**Sol.** Reqd. % = $\frac{(216+175)}{2400} \times 100 = 16.29\%$

S44. Ans.(a)

Required % = $\frac{63}{900} \times 100 = 7\%$

S45. Ans.(d)

Sol. Females in (HR + Marketing) = 330 + 191 = 521

Directions (46-50): Read the given bar graph and answer the following questions.

Number of Students taking fresh education loan from different Banks

Q46. Approximately how many students taking a loan from UCO in 2009 and PNB in 2010 were defaulters if 23% from UCO in 2009 and 20% from PNB in 2010 have defaulted?

(a) 630   (b) 650   (c) 600

(d) 750   (e) 840

Q47. In 2007, no of defaulters in SBI was 5%. However each year no of defaulters increases by 10% in number. What will be the difference between the number of defaulters of SBI in the year 2009 and 2012?

(a) 1500   (b) 2000   (c) 1325

(d) 1456   (e) Cannot be determined

Q48. In which of the following years, the difference in no. of students taking loan from Bank BOB from the previous year is highest?

(a) 2008   (b) 2009   (c) 2010

(d)2012   (e) None of these

Q49. If on average, Rs. 175000 per students education loan sanctioned by OBC bank all over the year. What will be total amount sanctioned by OBC in all given years?

(a) 1055600000   (b) 1055800000   (c) 1620000000

(d) 1050000000   (e) None of the above

Q50. What is the ratio of Number of students taking Education Loans from SBI and BOB together in all the years and the total no of students taking Education loans in 2010 and 2011 together?

(a) 8 : 5   (b) 5 : 7   (c) 7 : 5

(d) 9 : 7   (e) None of these

S46. Ans.(a)

Sol.

Students taking loan from UCO in 2009 = 1000

Defaulters (UCO) = 23% of 1000 = 230

Person taking loan from PNB in 2010 = 2000

Defaulters (PNB) = 20% of 2000 = 400

Total desired defaulters = 230 + 400 = 630

S47. Ans.(e)

Sol. Cannot be determined because no. of students taking a loan from SBI in 2007 is unknown.

S48. Ans.(b)

Sol. From graph, it is clear that in 2009, difference between no. of students taking a loan is highest as compared to previous year.

S49. Ans.(e)

Sol. No. of students taking education loan from OBC bank all over the year

= 1000 + 1000 + 1500 + 2000 + 1500= 7000

Total loan amount sanctioned over the years = 7000 × 1,75,000

= Rs. 1,22,50,00,000

S50. Ans.(c)

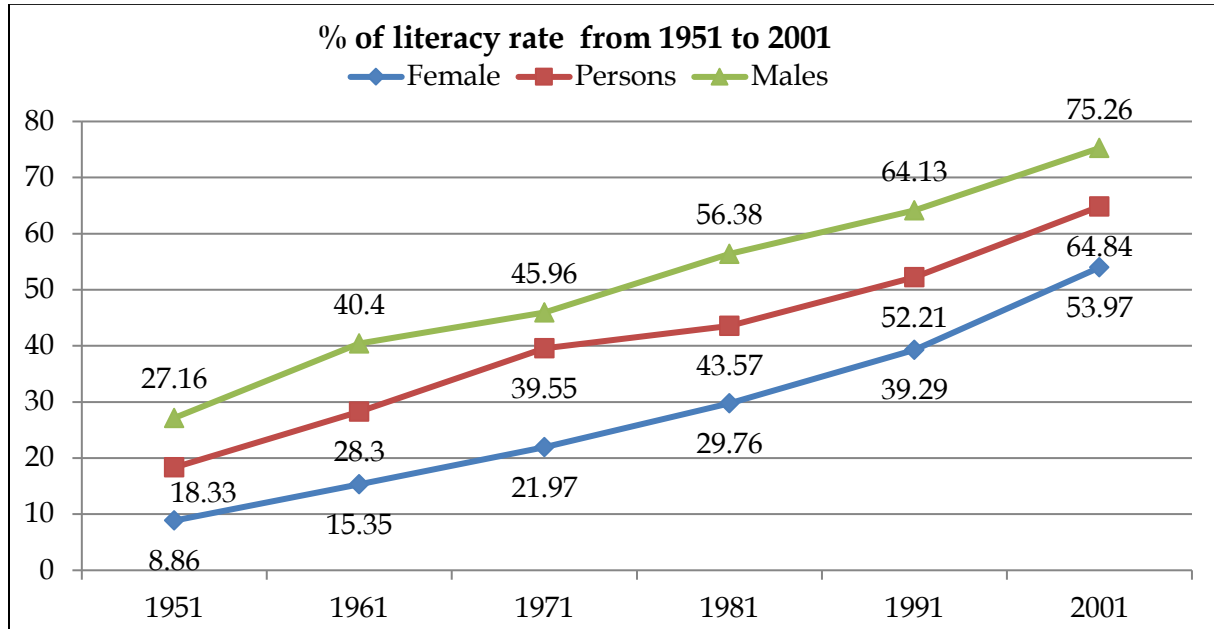**Sol.**

SBI : 2500 + 3000 + 4500 + 4000 + 5000 = 19000

BOB : 2500 + 3500 + 4000 + 4500 + 5000 = 19500

Total no. of students taking loan in 2010 = 13500

Total no. of students taking loan in 2011 = 14000

Desired ratio $= \frac{19000+19500}{13500+14000} = \frac{38500}{27500} = \frac{7}{5}$

Directions (51-55): Study the following line graph carefully and answer the questions given below.

% of literacy rate from 1951 to 2001

Female — Persons — Males

Males: 27.16 (1951), 40.4 (1961), 45.96 (1971), 56.38 (1981), 64.13 (1991), 75.26 (2001)

Persons: 18.33 (1951), 28.3 (1961), 39.55 (1971), 43.57 (1981), 52.21 (1991), 64.84 (2001)

Female: 8.86 (1951), 15.35 (1961), 21.97 (1971), 29.76 (1981), 39.29 (1991), 53.97 (2001)

1951 1961 1971 1981 1991 2001

Q51.What is the approx difference between the percentage literacy rate increased in male from 1951 to 1991 and percentage literacy rate increased in female from 1971 to 2001.
(a) 15%   (b) 10%   (c) 5%
(d) 20%   (e) 2%

Q52.In which of the census years percentage increase given in male literacy rate was the highest with respect to previous census year?
(a) 1981   (b) 1991   (c) 2001
(d) 1961   (e) None of these

Q53.In which of the given census years was the percentage increase in the literacy rate of females the lowest with respect to that of previous census year?
(a) 1981   (b) 1991   (c) 2001
(d) Data inadequate   (e) None of these

Q54.In which of the given census years was the percentage increase in the number of males the highest with respect to the previous census year?
(a) 1981   (b) 1991   (c) 2001
(d) Data inadequate   (e) None of these

Q55.What is the ratio of percentage literacy rate increased of male from (1961-1981) to literacy rate increased of person in 1971?

(a) 1 : 1   (b) 1 : 2   (c) 2 : 1

(d) 1 : 3   (e) 3 : 1

S51. Ans.(b)

Sol.

Required difference = $\left(\frac{53.97-21.97}{21.97}\right) \times 100 - \left(\frac{64.13-27.16}{27.16} \times 100\right)$

$= \left(\frac{32}{21.97} \times 100\right) - \frac{36.97}{27.16} \times 100$

≈ 146 – 136

≈ 10%

S52. Ans.(d)

Sol.

Percentage increase in the literacy rate of male in

1961 = 48.74%

1971 = 13.76%

1981 = 22.67%

1991 = 13.74%

2001 = 17.35%

∴Required year = 1961

S53. Ans.(b)

Sol.

Percentage increase in the literacy rate of female

In 1961 = 73.25%

In 1971 = 43.12%

In 1981 = 35.45%

In 1991 = 32.02%

In 2001 = 37.36%

S54. Ans.(d)

Sol.

Since, the number of males are not specified, we can not get the required value.

S55. Ans.(a)

Sol.

Required ratio = $\left(\frac{56.38-40.4}{40.4} \times 100\right) : 39.55$

= 39.55 : 39.55

= 1 : 1

Directions (56-60): Study the following graph carefully and answer the questions given below.

Number of TV sets sold over the years
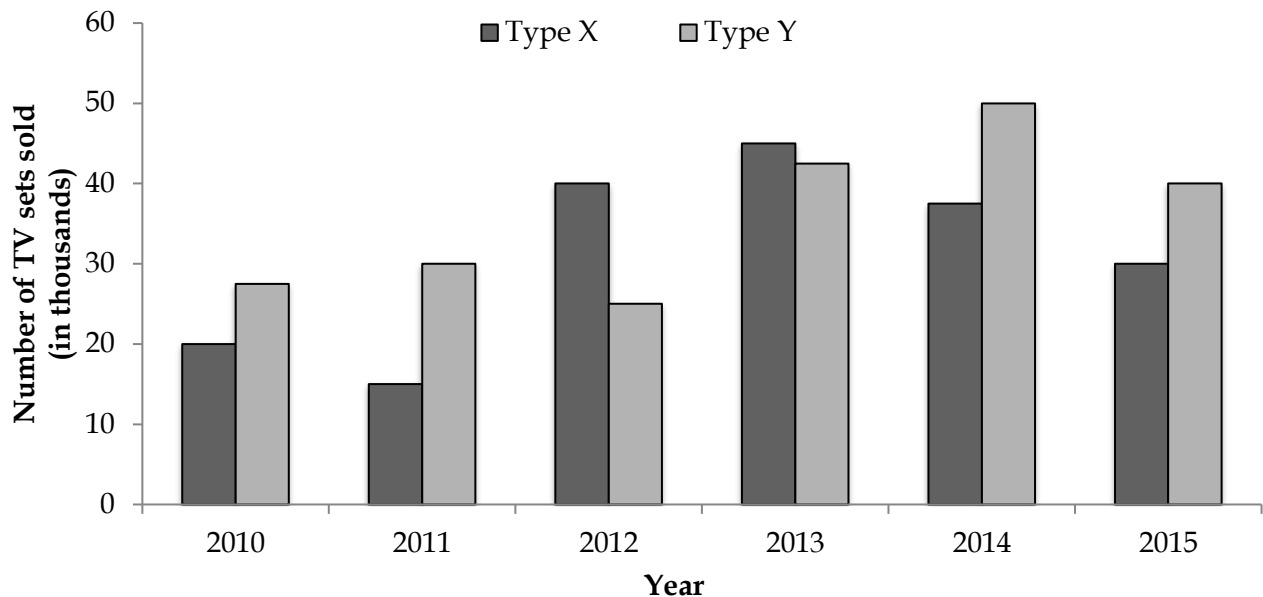
Q56. What was the average number of Y-type TV sets sold by the company in 2011, 2012, 2014 and 2015 together?
(a) 32869
(b) 36250
(c) 35600
(d) 39827
(e) 42686

Q57. The number of X-type TV sets sold in 2011 was exactly what percent of the number of Y-type TV sets sold in 2015?
(a) $33\frac{1}{2}\%$
(b) $32\frac{1}{3}\%$
(c) $37\frac{1}{2}\%$
(d) $45\frac{1}{2}\%$
(e) $53\frac{1}{2}\%$

Q58. What is the percentage increase in the sale of Y-type TV sets from 2011 to 2014?
(a) 25%
(b) $62\frac{2}{3}\%$
(c) $53\frac{1}{3}\%$
(d) $66\frac{2}{3}\%$
(e) 49%

Q59. In which of the following years was the percentage increase/decrease of sale of X-type TV sets the maximum from the previous year?
(a) 2014
(b) 2012
(c) 2015
(d) 2011
(e) 2010

Q60. In which of the following years was the difference between the sales of X-type TV sets and Y-type TV sets the maximum?
(a) 2010 and 2012
(b) 2013 and 2014
(c) 2011 and 2012
(d) 2014 and 2013
(e) 2012 and 2013

S56. Ans.(b)

Sol. Required average = $\frac{(30 + 25 + 50 + 40)}{4} \times 1000$

= $36.25 \times 1000 = 36250$

S57. Ans.(c)

Sol. Required % = $\frac{15}{40} \times 100 = 37\frac{1}{2}\%$

S58. Ans.(d)

Sol. Required % increase = $\frac{50 - 30}{30} \times 100$

= $\frac{200}{3}\% = 66\frac{2}{3}\%$

S59. Ans.(b)

Sol. In year 2011 = $\frac{15 - 20}{20} \times 100$

= $-\frac{5}{20} \times 100 = -25\%$

In year 2012 = $\frac{40 - 15}{15} \times 100 = 166\frac{2}{3}\%$

In year 2013 = $\frac{45 - 40}{40} \times 100 = 12.5\%$

In year 2014 = $\frac{37.5 - 45}{45} \times 100 = -16.67\%$

In year 2015 = $\frac{30 - 37.5}{37.5} \times 100 = -20\%$

S60. Ans.(c)

Sol. From the graph the maximum difference is in the year 2011 and 2012.

Directions (61-65): Study the following pie-charts carefully and answer the questions given below them.

The entire fund that an organization gets from different sources is equal to Rs. 16 crore.
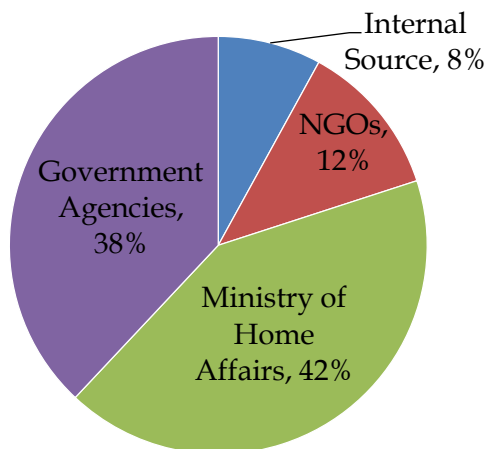
Sources of funds in the organisation
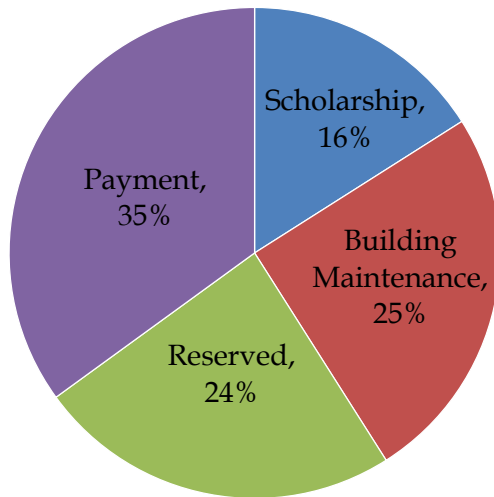
Use of fund by the organisation

Q61. What is the difference between the fund acquired by the organization from NGOs and that from Government Agencies?

(a) Rs. 43268000 (b) Rs. 38650000 (c) Rs. 46800000

(d) Rs. 52860000 (e) None of the above

Q62. If the organization managed Building Maintenance from the Ministry of Home Affairs fund only, how much fund from the Ministry of Home Affairs would still be left for other use?

(a) Rs. 2.72 crore (b) Rs. 7.23 crore (c) Rs. 5.20 crore

(d) Rs. 3.06 crore (e) Rs. 8.03 crore

Q63. If the Scholarship has to be paid out of the fund from Government Agencies, find what is the approximate percentage of Government Agencies fund used for this purpose.

(a) 42.11% (b) 38.6% (c) 31.23%

(d) 48.3% (e) 52%

Q64. What is the total amount used by the organization for Payment?

(a) Rs. 4.8 crore (b) Rs. 6.3 crore (c) Rs. 5.6 crore

(d) Rs. 9.73 crore (e) None of the above

Q65. What is the amount of fund acquired by the organization from Ministry of Home Affairs?

(a) 6.25 crores (b) 6.2 crores (c) 6.72 crores

(d) 9.25 crores (e) None of the above

S61. Ans.(e)
Sol. Required fund = (38 – 12)% of 160000000
= Rs. 41600000

S62. Ans.(a)
Sol. Required remaining amount
= 42% of 16 cr – 25% of 16 cr
= 17% of 16 cr
= 2.72 crore

S63. Ans.(a)
Sol. Required % = $\frac{16}{38} \times 100$ = 42.11%

S64. Ans.(c)
Sol. Required amount = 35% of 16 crore
= $\frac{35 \times 16}{100}$ = Rs. 5.6 crore

S65. Ans.(c)
Sol. Fund acquired = 42% of 16 crore
= $\frac{42 \times 16}{100}$ = Rs. 6.72 crore

Directions (66-70): Study the following table carefully and answer the questions given below:

Number of Cars (in thousands) of different Models and colours sold in two Metro Cities in a year

Type	Metro M					Metro H				
	Colour					Colour				
	Black	Red	Blue	White	Silver	Black	Red	Blue	White	Silver
A	40	25	55	75	15	45	32	40	60	20
B	20	35	60	80	20	30	37	39	81	35
C	35	30	50	90	35	40	42	41	6	37
D	45	40	45	85	40	35	39	37	90	42
E	50	35	35	60	30	50	44	43	77	22
F	55	42	40	65	52	47	34	45	87	17

Q66.The difference between the white-coloured cars sold in the two metros of which of the following models is the minimum?
(a) A   (b) C   (c) D
(d) F   (e) None of these

Q67. The total number of blue-coloured cars of Model E and D sold in metro H is exactly equal to the number of white-coloured cars of which model in Metro M?
(a) B   (b) F   (c) C
(d) A   (e) None of these

Q68. What is the difference between the number of blue-colours cars of model 'C' sold in Metro M and number of red-colour cars of Model 'F' sold in Metro H?

(a) 8,000   (b) 10,000   (c) 12,000

(d) 15,000   (e) None of these

Q69. The total number of silver-coloured cars sold in Metro H is approximately what percentage of that in Metro M?

(a) 130   (b) 140   (c) 90

(d) 100   (e) 110

Q70. In metro M the number of cars sold was maximum for which of thecolour-model combinations?

(a) White-C   (b) Blue-B   (c) Silver-B

(d) White-D   (e) Silver-F

S66. Ans.(e)
Sol.
A ⇒ 75 – 60 = 15   B ⇒ 81 – 80 = 1   C ⇒ 90 – 6 = 84
D ⇒ 90 – 85 = 5   E ⇒ 77 – 60 = 17   F ⇒ 87 – 65 = 22
Required model = B

S67. Ans.(a)
Sol. Blue coloured car of
Model E and D sold in Metro H = 43 + 37 = 80,000
Which is equal to white coloured car of B model in metro M

S68. Ans.(e)
Sol. Required difference = 50 – 34 = 16000

S69. Ans.(c)
Sol. Required % = $\frac{173}{192} \times 100 \approx 90\%$.

S70. Ans.(a)
Sol.
White C – 90
Blue B – 60
Silver B – 20
White D – 85
Silver F – 52

Direction (71–75): Study the following table carefully to answer the questions that follow:

Number of Orders cancelled by five different e-commerce companies in six different years

e-Com Years	P	Q	R	S	T
2011	240	405	305	365	640
2012	420	600	470	446	258
2013	600	680	546	430	610
2014	160	208	708	550	586
2015	140	640	656	250	654
2016	290	363	880	195	483

Q71. What was the difference between the highest number of Order cancelled by Company-Q and the lowest number of Order cancelled by Company-T out of all the six years?
(a) 325   (b) 422   (c) 596
(d) 416   (e) None of these

Q72. What was the approximate percentage increase in number of Order cancelled by Company-S in the year 2014 as compared to previous year?
(a) 57   (b) 44   (c) 125
(d) 28   (e) 95

Q73. What was the average number of Order cancelled by the Companies P,R, S and T in the year 2014?
(a) 405   (b) 551.5   (c) 501
(d) 488   (e) None of these

Q74. In 2016, 40% Order are cancelled by Company-R due to bad weather and others by packaging fault. How many orders are cancelled by Company-R due to packaging fault?
(a) 548   (b) 468   (c) 568
(d) 528   (e) None of these

Q75. What is the approximate percentage of cancelled Order by Companies P and R in 2013 as compared to cancelled orders by Company-S in 2011?
(a) 340   (b) 314   (c) 280
(d) 265   (e) 384

S71. Ans.(b)
Sol. Highest number of Order cancelled by Company-Q = 680
Lowest number of Order cancelled by Company-T = 258
Required difference = 680 – 258 = 422

S72. Ans.(d)

Sol. Number of Order cancelled by Company-S in the year 2013 = 430

Number of Order cancelled by Company-S in the year 2014 = 550

Required percentage = $\frac{550-430}{430} \times 100$ = 28 (approx)

S73. Ans.(c)

Sol. Required average = (160 + 708 + 550 + 586) ÷ 4

= 2004 ÷ 4 = 501

S74.Ans.(d)

Sol. Total number of Order are cancelled by Company R in 2016 = 880

Order are cancelled by Company-R due to packaging fault = 60%

Required number = 60% of 880

= 528

S75.Ans.(b)

Sol. Cancelled Order by Company's P and R in 2013 = 600 + 546 = 1146

Cancelled Order by Company-S in 2011 = 365

Required percentage = $\frac{600+546}{365} \times 100$ = 314(approx.)

Directions (76-80): Study the bar graph carefully and answer the following questions.

The number of male and female probationary officers in various banks

In thousand
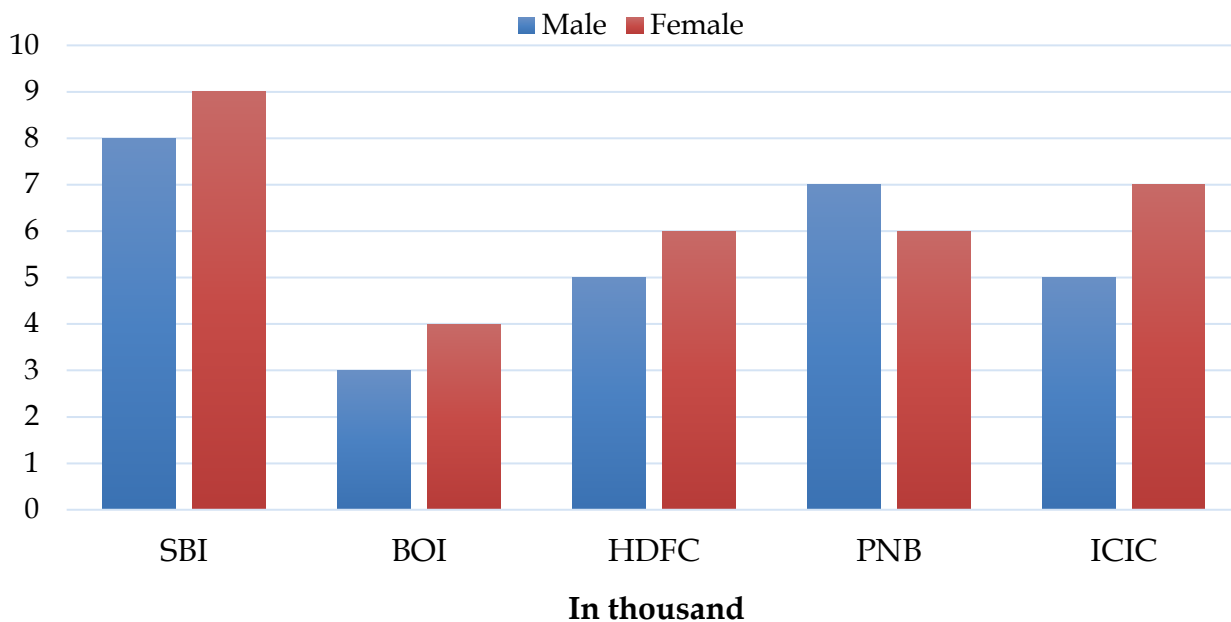
Q76.What is the total number of employees in the given six banks?
(a) 60000   (b) 56000   (c) 58000
(d) 62000   (e) 59000

Q77.What is the ratio of male to female probationary officers in all six banks?
(a) 5 : 4   (b) 3 : 2   (c) 2 : 3
(d) 7 : 8   (e) 4 : 5

Q78.In HDFC 40% males and 30% females are unmarried, then what is the ratio of the married males to the married females in HDFC?
(a) 7 : 5   (b) 5 : 7   (c) 12 : 13
(d) 2 : 3   (e) 3 : 5

Q79.If the number of married male probaionary officers in ICICI is euqal to that in PNB, which is 40% of the male probabtionary officers in PNB, then what is the percentage of married male probationary officers in ICIC with respect to the total number of probationary officers in ICIC?
(a) 25.51%   (b) 28%   (c) 27.91%
(d) 22%   (e) 23.33%

Q80.The male probationary officers in PNB is what per cent more than the female probationary officers in BOI?
(a) 74.8%   (b) 74%   (c) 75%
(d) 75.4%   (e) 78%

S76. Ans.(a)
Sol. Total employees of the given six banks
= (8 + 9 + 3 + 4 + 6 + 5 + 6 + 7 + 5 + 7) × 1000 = 60000

S77. Ans.(d)
Sol. Ratio of male to female probationary officers in all six banks
= (8000 + 3000 + 5000 + 7000 + 5000) : (9000 + 4000 + 6000 + 6000 + 7000)
= 28000 : 32000 = 7 : 8

S78.Ans (b)
Sol. Unmarried males in HDFC = $5000 \times \frac{40}{100} = 2000$
∴ Married males = (5000 – 2000) = 3000
Unmarried females in HDFC = $6000 \times \frac{30}{100} = 1800$
∴ Married females = (6000 – 1800) = 4200
∴ Required ratio = 3000 : 4200 = 5 : 7

S79. Ans.(e)

Sol. Number of male married probationary officers in ICICI

= Number of male married probationary officers in PNB

= Male probationary officers in PNB $\times \frac{40}{100} = 7000 \times \frac{40}{100} = 2800$

∴The percentage of married male probationary officers in ICICI w.r.t to the total probationary officers in ICICI

$= \frac{2800 \times 100}{7000 + 5000} = 23.33\%$

S80. Ans.(c)

Sol. Required% $= \frac{7000 - 4000}{4000} \times 100\%$

= 75% more than female probationary officers in BOI

Directions (81-85): The table given below shows the monthly salary of six employees working in a leading manufacturing firm.

Years→ Employees↓	2011	2012	2013	2014	2015	2016
Richali	19200	20500	23400	25000	26600	28200
Piyush	28500	30100	31800	33000	34900	36000
Ritesh	22600	24000	26400	28100	29800	31000
Aditi	23000	24500	26100	27000	29300	31200
Krishna	24800	26000	27900	29100	30800	33000
Raksha	31500	35800	36600	40200	44000	45800

Q81. What is the difference between average monthly income of Aditi all over the years and monthly income of Raksha in 2015?

(a) Rs. 17250　　　　　　(b) Rs. 18150　　　　　　(c) Rs. 17510

(d) Rs. 17150　　　　　　(e) None of these

Q82. Monthly salary of Ritesh in 2016 contributes for what percent in total monthly salary of Richali, Piyush and Krishna together in 2016? (approximately)

(a) 30%　　　　　　(b) 32%　　　　　　(c) 38%

(d) 42%　　　　　　(e) 28%

Q83. Find the ratio of annual salary of Aditi in 2012 and Raksha in 2014 together to that of Piyush in 2013 and Richali in 2011 together?

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

(d) 3 : 2　　　　　　(e) None of these

Q84. Monthly salary of Piyush and Krishna together in 2013 is by what percent more or less than that of Aditi and Raksha together in 2015? (approximately)

(a) 19% more   (b) 16% less   (c) 19% less

(d) 16% more   (e) 29% less

Q85. In 2015, Raksha donated 5% of her monthly salary, she then lent out 20% of remaining salary on CI at 5% for 3 years. Find the interest (approx.) earned by her after 3 years?

(a) Rs. 1381   (b) Rs. 1318   (c) Rs. 1418

(d) Rs. 1315   (e) Rs. 1300

S81. Ans.(d)

Sol. Average monthly income of Aditi = $\frac{1}{6} \times 161100$ = 26850 Rs.

∴Required difference = 44000 – 26850 = Rs. 17150

S82. Ans.(b)

Sol. Required percentage = $\frac{31000}{97200} \times 100 \approx 32\%$

S83. Ans.(e)

Sol. Required ratio = $\frac{(24500+40200) \times 12}{(31800+19200) \times 12} = \frac{647}{510}$

S84. Ans.(c)

Sol. Monthly salary of Piyush and Krishan = 31800 + 27900 = 59700

Monthly salary of Adity and Raksha = 29300 + 44000 = 73300

∴Required percentage = $\frac{13600}{73300} \times 100 \approx 19\%$ less.

S85. Ans.(b)

Sol. 20% of amount left after donation = $\frac{1}{5} \times \frac{95}{100} \times 44000$

= Rs. 8360

∴ C.I. after 3 years = $8360 \left[\left(1 + \frac{5}{100} \right)^3 - 1 \right]$

= 8360 × 0.1576

≈ Rs. 1318

Directions (86-90): A team of 5 players participated in a tournament and played four matches (1 to 4). The following table gives partial information about their individual scores and the total runs scored by the team in each match.

Each column has two values missing. These are the runs scored by the two lowest scorers in that match. None of the two missing values is more than 10% of the total runs scored in that match.

Runs scored by player		Match-1	Match-2	Match-3	Match-4
	Ajinkya		100		53
	Pandya	88	65		52
	Cheteswar			100	
	Dhawan	72	75	20	56
	Virat	60		78	
Total		270	300	240	200

Q86. What is the maximum possible percentage contribution of Ajinkya in the total runs scored in the four matches (approximately)?

(a) 20% (b) 22% (c) 17%

(d) 23% (e) Cannot be determined

Q87. What is the maximum possible percentage contribution of Viratin the total runsscored in the four matches?

(a) 18% (b) 19.9% (c) 18.6%

(d) 20.2% (e) Cannot be determined

Q88. If the absolute difference between the total runs scored by Ajinkya and Cheteshwar in the Four matches is minimum possible then what is the ratio of Ajinkya and Cheteshwar's total runs scored by them in the four matches.

(a) 187:189 (b) 189:187 (c) 183:187

(d) 189:188 (e) Cannot be determined

Q89. If the absolute difference between the total runs scored by Ajinkya and Cheteshwar in the four matches is minimum possible then what is the absolute difference between total runs scored by Pandya and Virat in the four matches?

(a) 32 (b) 37 (c)35

(d) 27 (e) Cannot be determined

Q90. The players are ranked 1 to 5 on the basis of the total runs scored by them in the four matches, with the highest scorer getting Rank 1. If it is known that no two players scored the same number of total runs, how many players are there whose ranks can be exactly determined?

(a) 0 (b) 1 (c) 3

(d) 5 (e) Cannot be determined

S86. Ans. (a)

Sol.

Maximum possible runs scored by Ajinkya in Match-1 = 27

Maximum possible runs scored by Ajinkya in Match-3 = 19 (less than 20)

Maximum possible percentage contribution:

$\frac{27 + 100 + 19 + 53}{270 + 300 + 240 + 200} \times 100\% = \frac{199}{1010} \times 100\% = 19.7\%$

= 20% approx.

S87. Ans. (c)

Sol.

Maximum possible runs scored by Virat in Match-2 = 30

Maximum possible runs scored by Virat in Match-4 = 20

Maximum possible percentage contribution:

$\frac{60 + 30 + 78 + 20}{270 + 300 + 240 + 200} \times 100\%$

$= \frac{188}{1010} \times 100\% = 18.6\%$

S88. Ans. (b)

Sol.

Maximum possible total runs scored by Cheteshwar in the four matches = 27 + 30 + 110 + 20 = 187.

Total runs scored by Ajinkya in the four matches is in the range of 189 to 199

Hence,

In such a case minimum possible

Total runs scored by Ajinkya in the four matches = 23 + 100 + 13 + 53 = 89

Difference = 189 – 187 = 2 (minimum possible)

So Required ratio is 189: 187

S89. Ans. (b)

Sol.

Maximum possible total runs scored by Cheteshwar in the four matches= 27 + 30 + 110 + 20 = 187.

In such a case minimum possible total runs scored by Ajinkya in the four matches

= 23 + 100 + 13 + 53 = 189.
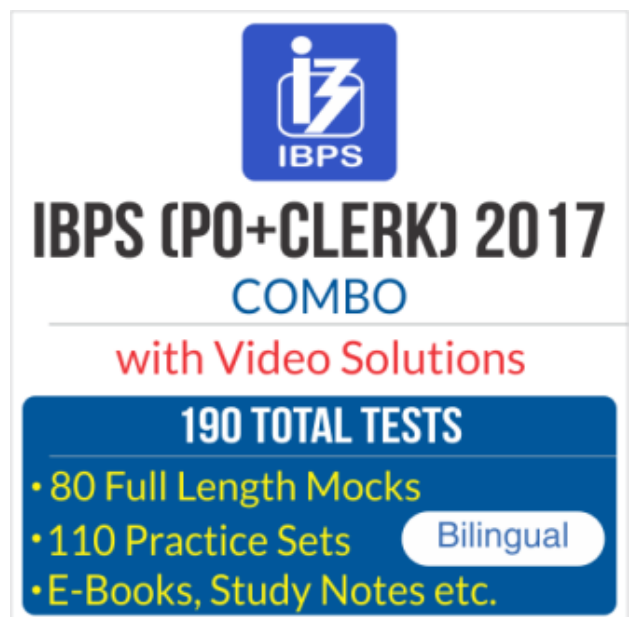
Difference = 189 – 187 = 2 (minimum possible)

Subsequently total runs scored by Pandya in the four matches = 88 + 65 + 19 + 52 = 224.

Also, total runs scored by Virat in the four matches

= 60 + 30 + 78 + 19 = 187

Absolute difference = 224 – 187 = 37

S90. Ans.(c)
Sol.
Individual ranges for total score:
Ajinkya-> 189-199
Pandya-> 218-224
Cheteshwar-> 182-187
Dhawan-> 223
Virat-> 187-188
Least total will be of Cheteshwar (Rank 5)
2nd least will be Virat (Rank 4)
Rank 3 must be of Ajinkya
It is not possible to determine the exact ranks of Pandya and Dhawan

Directions (91-95): The table below shows production of five types of Trucks by a company in the years 2009 to 2014. Study the table and answer questions.

Production of trucks by a company

Year → Type ↓	2009	2010	2011	2012	2013	2014	Total
Minivan	8	20	16	17	21	6	88
Pickup	16	10	14	12	12	14	18
Canopy	21	17	16	15	13	8	90
Panel	4	6	10	16	20	31	87
Cab	25	18	19	30	14	27	133
Total	74	71	75	90	80	86	476

Q91. In which year the production of trucks of all types taken together was approximately equal to the average of the total production during the period?
(a) 2009   (b) 2011   (c) 2013
(d) 2014   (e) None of these

Q92. In which year, the total production of trucks of types of Minivan and Pickup together was equal to the total production of trucks of types Canopy and Panel together.
(a) 2010   (b) 2011   (c) 2014
(d) 2013   (e) None of these

Q93. During the period 2009-14, in which type of trucks was a continuous increase in production?
(a) Minivan   (b) Pickup   (c) Canopy
(d) Panel   (e) None of these

Q94. The production of which type of trucks was 25% of the total production of all types of trucks during 2013?
(a)Panel   (b) Canopy   (c) Pickup
(d)Minivan   (e) None of these

Q95. The per cent increase in total production of all types of trucks in 2012 to that in 2011 was?
(a) 15   (b) 20   (c) 25
(d) 30   (e) None of these

S91. Ans.(c)
Sol. Average of the total production during the period $= \frac{476}{6} \approx 80$ which is equal to the total production in 2013.

S92. Ans.(d)
Sol. Answer will be 2013.

S93. Ans.(d)
Sol. Answer is Panel

S94. Ans.(a)
Sol. 25% of 80 = 20 = production of Panel's car in 2013.

S95. Ans.(b)
Sol. Required percent increase $= \frac{90-75}{75} \times 100 = 20\%$

Directions (96-100): Study the following graph to answer the given questions.

Percent profit earned by two companies over the given years

$$\% \text{ profit} = \frac{\text{Income} - \text{Expenditure}}{\text{Expenditure}} \times 100$$
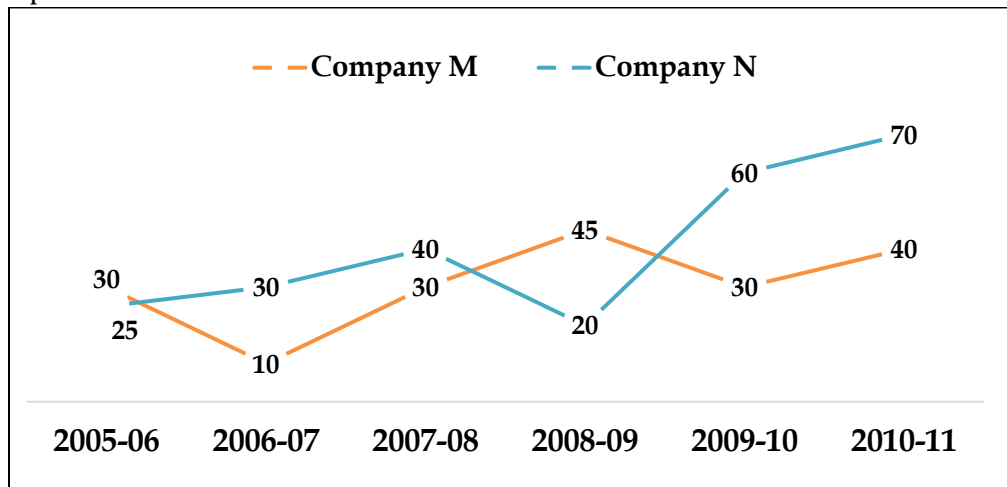
Q96. For Company M, its income in 2009-10 was equal to its expenditure in 2010-11, what was the ratio of its respective incomes in these two years?
(a) 4:5 (b) 3:4 (c) 5:7
(d) Cannot be determined (e) None of these

Q97. If the income of Company M in 2006-07was equal to the expenditure of Company N in 2009-10 what was the ratio of their respective profits?
(a) 13:15 (b) 15:26 (c) 13:26
(d) Cannot be determined (e) None of these

Q98. What was the difference in the expenditures of the two companies in 2007-08?
(a) 10 (b) 100 (c) 1000
(d) Cannot be determined (e) None of these

Q99. In 2010-11 the income of Company N was Rs. 119 crores. What was its expenditure in that year?
(a) Rs. 76.8 crore (b) Rs. 64 crore (c) Rs. 70 crore
(d) Cannot be determined (e) None of these

Q100. For Company N, in which year is the percent of increase in percent profit over that of previous year the highest?
(a) 2011-12 (b) 2007-08 (c) 2010-11
(d) Cannot be determined (e) None of these

S96. Ans.(c)
Sol.

$$I_{M\ 2009-10} = E_{M\ 2010-11} = \frac{I_{M\ 2010-11}}{1.4}$$

$$I_{M\ 2009-10} : I_{M\ 2010-11} = \frac{10}{14} = 5:7.$$

S97. Ans.(e)
Sol. Suppose in the year 2006-07 expenditure of Company M = Rs. a
Then profit earned by Company M in this year = Rs. (10% of a)
Hence, income of Company M = Rs. (110% of a)
Again, expenditure of Company N in 2009-10 = Rs. $\frac{a \times 110}{100}$
Hence, profit earned by Company N in 2009-10

$$= Rs.\frac{a \times 110}{100} \times \frac{60}{100}$$

Thus, required ratio

$$= \frac{\frac{10}{100} \times a}{\frac{a \times 110}{100} \times \frac{60}{100}} = \frac{10}{66} = 5:33.$$

S98. Ans.(d)
Sol. The given graph depicts only the percent profit earned by the two companies over the given years. Hence, these information are insufficient to answer the question.

S99. Ans.(c)
Sol. In 2010-11, profit earned by Company N was 70%
Therefore, 170% of expenditure Rs. 119 crore
Thus, required expenditure = $\frac{119}{170} \times 100$ = Rs. 70 Crores

S100. Ans.(e)
Sol. Percent of increase in percent profit over that of the previous year for the given years is as follows:
Year
2006-07: $\frac{(30-25)}{25} \times 100$ = 20%
2007-08: $\frac{(40-30)}{30} \times 100$ = 33.33%
2008-09: = $\frac{(20-40)}{40} \times 100$ = -50%
2009-10: $\frac{(60-20)}{20} \times 100$ = 200%
2010-11: $\frac{(70-60)}{60} \times 100$ = 16.66%

Directions (101-105): Study the graphs carefully to answer the questions that follow.

Total number of children in 6 different schools and the percentage of girls in them
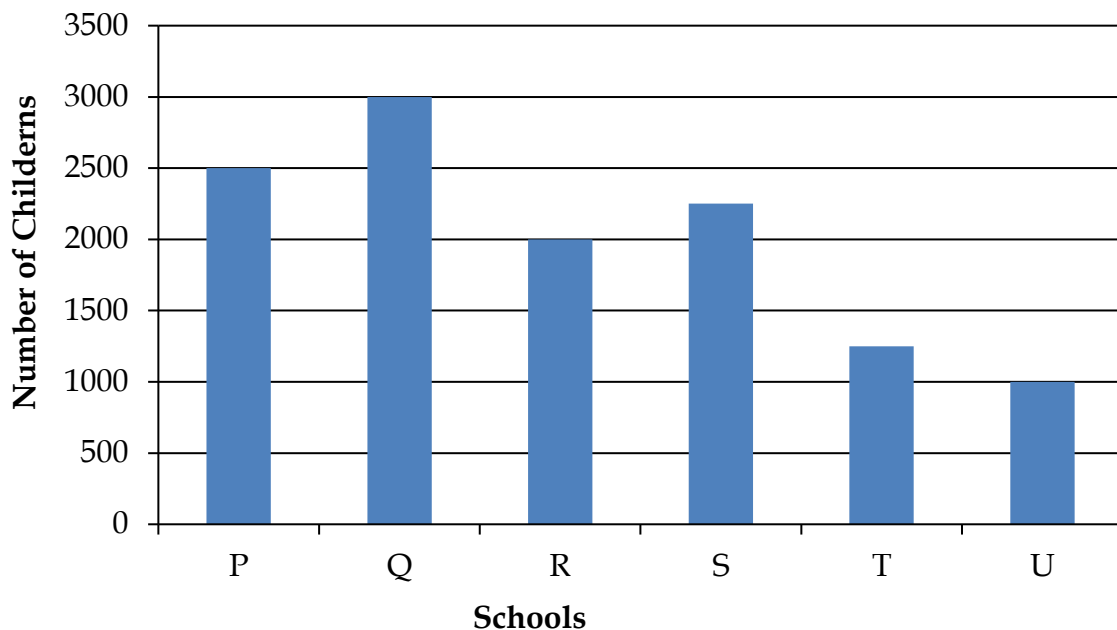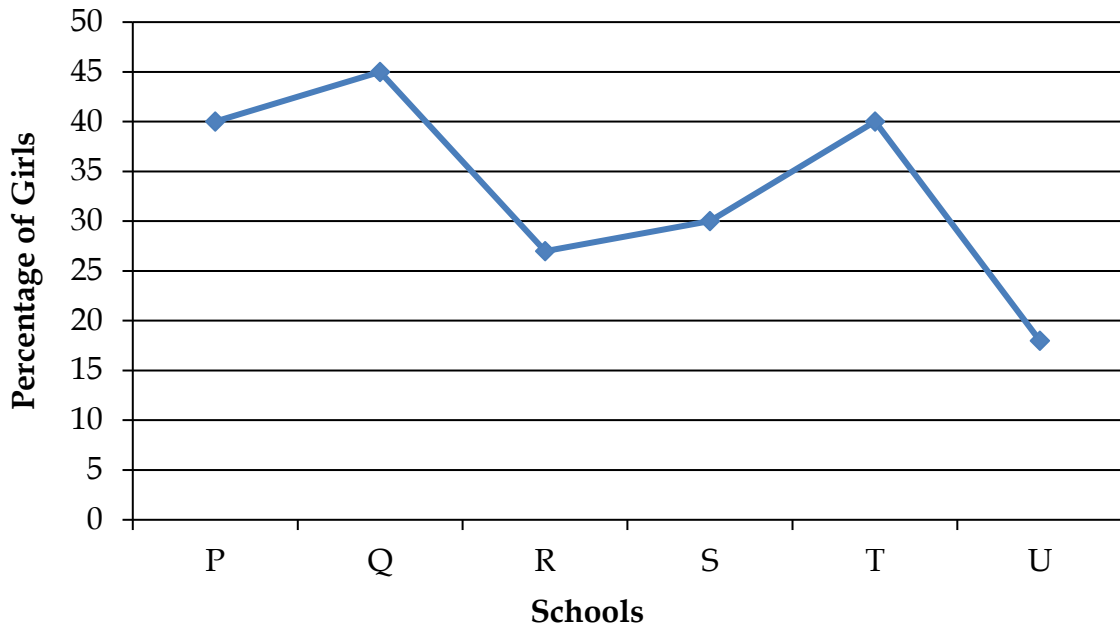
Q101. What is the total percentage of boys in schools R and U together? (rounded off to two digits after decimal)
(a) 78.55   (b) 72.45   (c) 76.28
(d) 75.83   (e) None of these

Q102. What is the total number of boys in school T?
(a) 500   (b) 600   (c) 750
(d) 850   (e) None of these

Q103. The total number of students in school R, is approximately what per cent of the total number of students in school S?
(a) 89   (b) 75   (c) 78
(d) 82   (e) 94

Q104. What is the average number of boys in schools P and Q together?
(a) 1425   (b) 1575   (c) 1450
(d) 1625   (e) None of these

Q105. What is the respective ratio of the number of girls in schools P to the number of girls in school Q?   (a) 27 : 20   (b) 17 : 21
(c) 20 : 27   (d) 21 : 17
(e) None of these

S101. Ans.(d)
Sol. Number of boys in school R and U together
$$= \frac{2000 \times 72.5}{100} + \frac{1000 \times 82.5}{100}$$
$$= 1450 + 825 = 2275$$
∴Required percentage $= \frac{2275}{3000} \times 100 = 75.83\%$

S102. Ans.(c)
Sol. Number of boys in school T $= \frac{1250 \times 60}{100} = 750$

S103. Ans.(a)
Sol. Total number of students in school R = 2000
Total number of students in school S = 2250
∴Required percentage $= \frac{2000}{2250} \times 100 \approx 89$

S104. Ans.(b)
Sol. Required average $= \frac{1}{2}\left(\frac{2500 \times 60}{100} + \frac{3000 \times 55}{100}\right)$
$= \frac{1}{2}(1500 + 1650) = \frac{1}{2} \times 3150 = 1575$

S105. Ans.(c)
Sol. Required ratio $= \frac{2500 \times 40}{100} : \frac{3000 \times 45}{100}$
= 25 ×40 : 30 × 45
= 100 : 135 = 20 : 27

Directions (106-110): Study the graph and answer the following questions.

Power Supply Position in UP (in billion KWH)
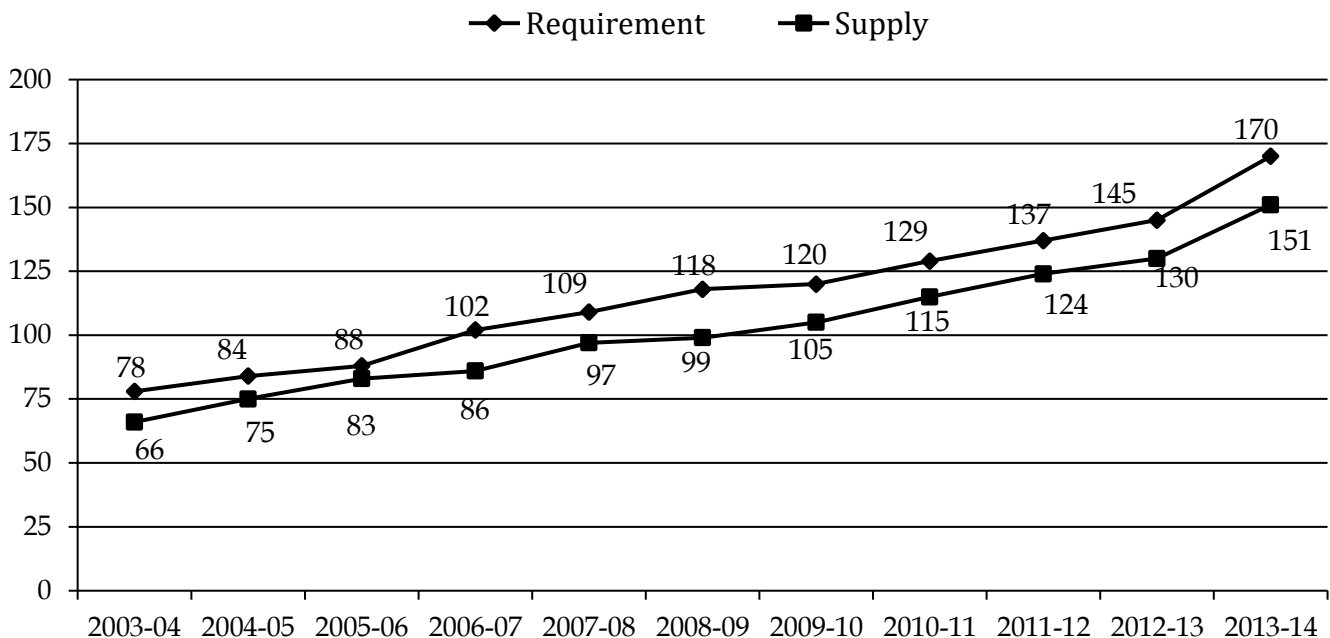
Q106. What was the approximate percentage increase in supply of power between 2009-10 and 2013-14?
(a) 56%   (b) 145%   (c) 43%
(d) 85%   (e) None of these

Q107. The cumulative shortfall between requirement and supply from 2009 to the end of 2014 was (in billion)

(a) 56   (b) 85   (c) 45

(d) 76   (e) None of these

Q108. The requirement of power in 2013-14 was approximately how many times the availability of supply in 2007-08?

(a) 2.6   (b) 1.75   (c) 2.75

(d) 2.0   (e) None of these

Q109. The percentage of growth in power requirement from 2008-09 to 2013-14 was less than the percentage of growth in power requirement from 2003-04 to 2008-09 by what figure?

(a) 3   (b) 4   (c) 15

(d) 7   (e) None of these

Q110. Between 2008-09 and 2012-13, the power generation has generally logged behind power demand by how many years?

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

(d) 4   (e) None of these

S106. Ans.(c)
Sol. In 2009-10 is 105 while in 2013-14 is 151.
So percentage increases is $\frac{151-105}{105} \times 100 = \frac{46}{105} \times 100 = 43\%$

S107. Ans.(d)
Sol. Total requirement = 120 + 129 + 137 + 145 + 170 = 701
Total supply = 105 + 115 + 124 + 130 + 151 = 625
Difference = 701 - 625 = 76

S108. Ans.(b)
Sol. 170 = 97 × x
So, $x = \frac{170}{97} = 1.75$

S109. Ans.(d)
Sol. In 2008-09 to 2013-14, % Growth = $\frac{170-118}{118} \times 100 \approx 44\%$
In 2003-04 to 2008-09 growth= $\frac{118-78}{78} = \frac{40}{78} \times 100 \approx 51\%$
So, more ≈ 51 - 44 = 7%

S110. Ans.(c)
Sol. In 2008-09 demand was 118 which completed in 2012-2013 means 3 years.

Directions (111-115): Dominos prepares Pizzas of three different types – Cheese, Onion and Chicken.

The production of the three types over a period of six Months has been expressed in the bar-graph provided below. Study the graph and answer the questions based on it.

Order of three different types of Dominos Pizzas over the Months (in lakh orders)
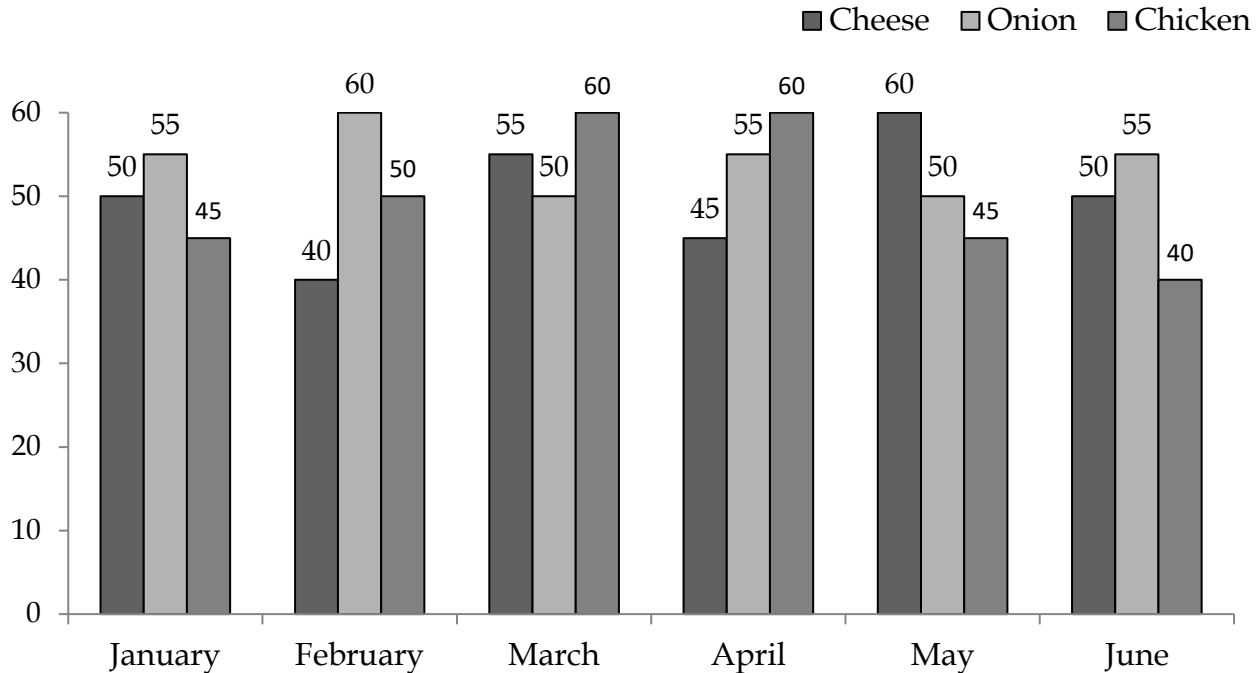
Q111. For which of the following Months the percentage of rise/fall in Order from the previous Month is the maximum for the Onion flavor?
(a) February   (b) March   (c) April
(d) May   (e) June

Q112. For which type was the average annual Order maximum in the given period?
(a) Cheese only   (b) Onion only   (c) Chicken only
(d) Cheese and Onion   (e) Cheese and Chicken

Q113. The total Order of Chicken type in March and April is what percentage of the total Order of Cheese type in January and February?
(a) 96.67%   (b) 102.25%   (c) 115.57%
(d) 120%   (e) 133.33%

Q114. What is the difference between the average Order of Cheese type in January, February and March and the average Order of Onion type in April, May and June?
(a) 50,000 orders   (b) 80,000 orders   (c) 2,40,000 orders
(d) 3,30,000 orders   (e) 5,00,000orders

Q115. What was the approximate decline in the Order of Chicken type in June as compared to the Order in April?

(a) 50%　　　　　　　　(b) 42%　　　　　　　　(c) 33%

(d) 25%　　　　　　　　(e) 22.5%

S111. Ans.(b)

Sol. The percentage rise/fall in Order from the previous Month for Onion type during various Months are:

In February = $\left[\frac{(60-55)}{55} \times 100\right]$ % = 9.09% (increase)

In March = $\left[\frac{(60-50)}{60} \times 100\right]$ % = 16.67% (decrease)

In April = $\left[\frac{(55-50)}{55} \times 100\right]$ % = 10% (increase)

In May = $\left[\frac{(55-50)}{55} \times 100\right]$ % = 9.09% (decrease)

In June = $\left[\frac{(55-50)}{50} \times 100\right]$ % = 10% (increase)

∵Maximum change is decrease of 16.67% during March.

S112. Ans.(b)

Sol. Average annual Orders over the given period for various types are:

For Cheese type = $\left[\frac{1}{6} \times (50 + 40 + 55 + 45 + 60 + 50)\right]$ lakh orders = 50 lakh orders.

For Onion type = $\left[\frac{1}{6} \times (55 + 60 + 50 + 55 + 50 + 55)\right]$ lakh orders

= 54.17 lakh orders.

For Chicken type = $\left[\frac{1}{6} \times (45 + 50 + 60 + 60 + 45 + 40)\right]$ lakh orders = 50 lakh orders.

∴ Maximum average Order is for Onion type.

S113. Ans.(e)

Sol. Required percentage = $\left[\frac{(60 + 60)}{(50 + 40)} \times 100\right]$ % = $\left(\frac{120}{90} \times 100\right)$ % = 133.33%.

S114. Ans.(e)

Sol. Average Order of Cheese type in January, February and March = $\left[\frac{1}{3} \times (50 + 40 + 55)\right]$

= $\left(\frac{145}{3}\right)$ lakh orders.

Average Order of Onion type in April, May and June = $\left[\frac{1}{3} \times (55 + 50 + 55)\right]$

= $\left(\frac{160}{3}\right)$ lakh orders.

∴ Difference = $\left(\frac{160}{3} - \frac{145}{3}\right) = \frac{15}{3}$ = 5 lakh orders = 5,00,000 orders.

S115. Ans.(c)
Sol. Percentage decline in the Order of type Chicken in June as compared to the Order in April = $\left[\frac{(60-40)}{60} \times 100\right]\% = \left(\frac{20}{60} \times 100\right)\% = 33.33\% \approx 33\%$.

Directions (116-120): Study the following Graph carefully and answer the questions given below:

Preferences of People in Playing Different Games Over the Years (in Hundred)
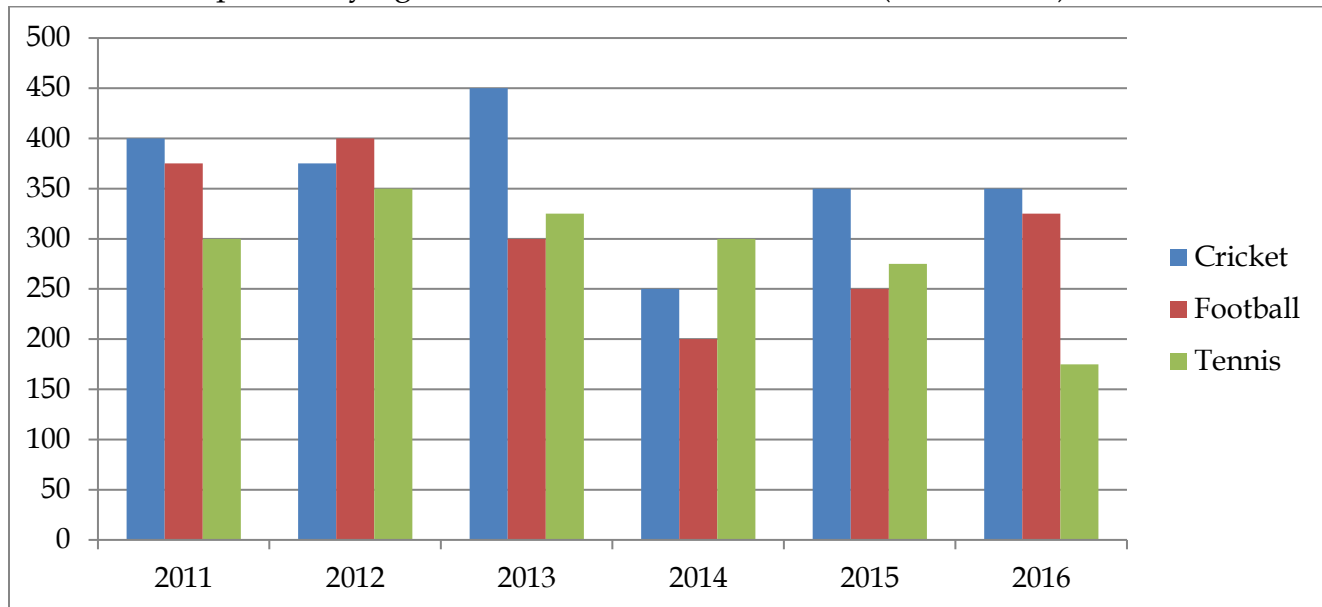
Q116. In the year 2016, the people preferring to play Tennis is what percent of the people prefer to play Cricket, Football and Tennis together in that year?
(a) 22.76%
(b) 20.58%
(c) 42. 24%
(d) 25%
(e) None of these

Q117. How many people have preferred to play Cricket in all the years together?
(a) 217500
(b) 224500
(c) 247500
(d) 175600
(e) None of these

Q118. What is the respective ratio of the number of people prefer to play cricket in 2011, 2013 and 2015 to the number of people prefer to play Tennis in the year 2013, 2015 and 2016?
(a) 2 : 1
(b) 45 : 33
(c) 44 : 31
(d) 48 : 31
(e) None of these

Q119. From 2011 to 2016, the total number of people who preferred to play Football was what percent more or less than the total number of people who preferred to play Tennis during same period?
(a) 5.24%
(b) 6.24%
(c) 7.24%
(d) 8.24%
(e) 10%

Q120. The no. of people prefer to play tennis in 2016 is what percent fewer than the number of people preferring to play tennis in 2015?

(a) $23\frac{4}{11}$ % (b) $36\frac{4}{11}$ % (c) $42\frac{7}{13}$ %

(d) $33\frac{9}{13}$ % (e) None of these

S116. Ans.(b)
Sol.
$$\text{Desired}\% = \frac{175}{350 + 325 + 175} \times 100 = \frac{175}{850} \times 100 = 20.58\%$$

S117. Ans.(a)
Sol. Total people playing cricket over all years = 2,17,500

S118. Ans.(d)
Sol.
$$\text{Ratio} = \frac{400 + 450 + 350}{325 + 275 + 175} = \frac{1200}{775} = 48 : 31$$

S119. Ans.(c)
Sol.
$$\text{Desired } \% = \frac{1850 - 1725}{1725} \times 100 = \frac{125}{1725} \times 100 = 7.24\%$$

S120. Ans.(b)
Sol.
$$\text{Desired } \% = \frac{275 - 175}{275} \times 100 = \frac{400}{11} = 36\frac{4}{11}\%$$

Directions (121–125): Read the given bar graph and answer the following questions.

Number of Students taking fresh education loan from different Banks
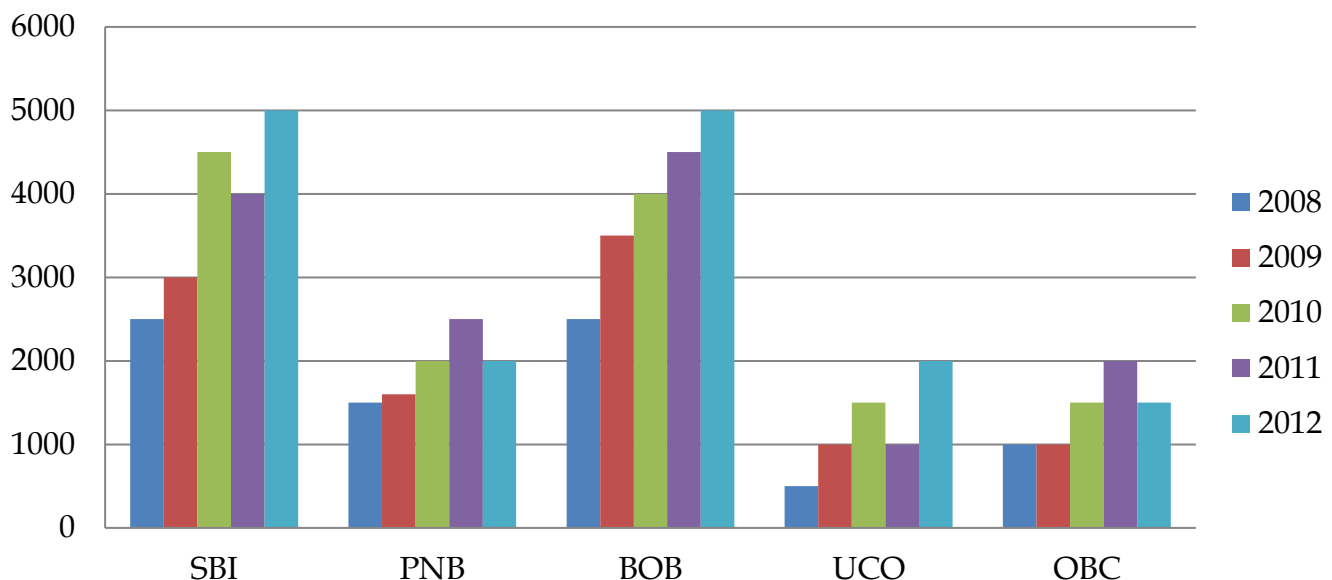
Q121. Approximately how many students taking a loan from UCO in 2009 and PNB in 2010 were defaulters if 23% from UCO in 2009 and 20% from PNB in 2010 have defaulted?
(a) 630   (b) 650   (c) 600
(d) 750   (e) 840

Q122. In 2007, no of defaulters in SBI was 5%. However each year no of defaulters increases by 10% in number. What will be the difference between the number of defaulters of SBI in the Month 2009 and 2012?
(a) 1500   (b) 2000   (c) 1325
(d) 1456   (e) Cannot be determined

Q123. In which of the following years, the difference in no. of students taking loan from Bank BOB from the previous year is highest?
(a) 2008   (b) 2009   (c) 2010
(d) 2012   (e) None of these

Q124. If on average, Rs. 175000 per students education loan sanctioned by OBC bank all over the years. What will be total amount sanctioned by OBC in all given years?
(a) 1055600000   (b) 1055800000   (c) 1620000000
(d) 1050000000   (e) None of the above

Q125. What is the ratio of Number of students taking Education Loans from SBI and BOB together in all the Years and the total no of students taking Education loans in 2010 and 2011 together?
(a) 8 : 5   (b) 5 : 7   (c) 7 : 5
(d) 9 : 7   (e) None of these

S121. Ans.(a)
Sol.
Students taking loan from UCO in 2009 = 1000
Defaulters (UCO) = 23% of 1000 = 230
Person taking loan from PNB in 2010 = 2000
Defaulters (PNB) = 20% of 2000 = 400
Total desired defaulters = 230 + 400 = 630
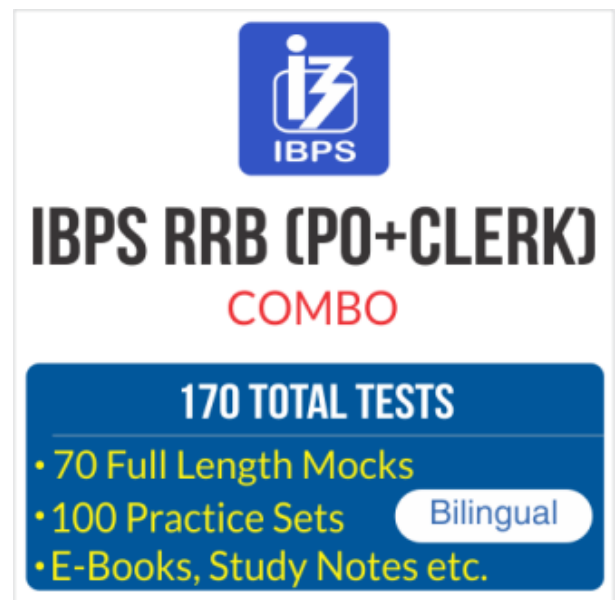
S122. Ans.(e)
Sol. Cannot be determined because no. of students taking a loan from SBI in 2007 is unknown.

S123. Ans.(b)

Sol. From graph, it is clear that in 2009, difference between no. of students taking a loan is highest as compared to previous year.

S124. Ans.(e)

Sol. No. of students taking education loan from OBC bank all over the year

= 1000 + 1000 + 1500 + 2000 + 1500 = 7000

Total loan amount sanctioned over the years = 7000 × 1,75,000

= Rs. 1,22,50,00,000

S125. Ans.(c)

Sol.

SBI : 2500 + 3000 + 4500 + 4000 + 5000 = 19000

BOB : 2500 + 3500 + 4000 + 4500 + 5000 = 19500

Total no. of students taking loan in 2010 = 13500

Total no. of students taking loan in 2011 = 14000

Desired ratio = $\frac{19000+19500}{13500+14000} = \frac{38500}{27500} = \frac{7}{5}$

Directions (126-130): Study the following Radar graph carefully and answer the questions given below.

Number of students studying in different universities in a year (Numbers in Lac).
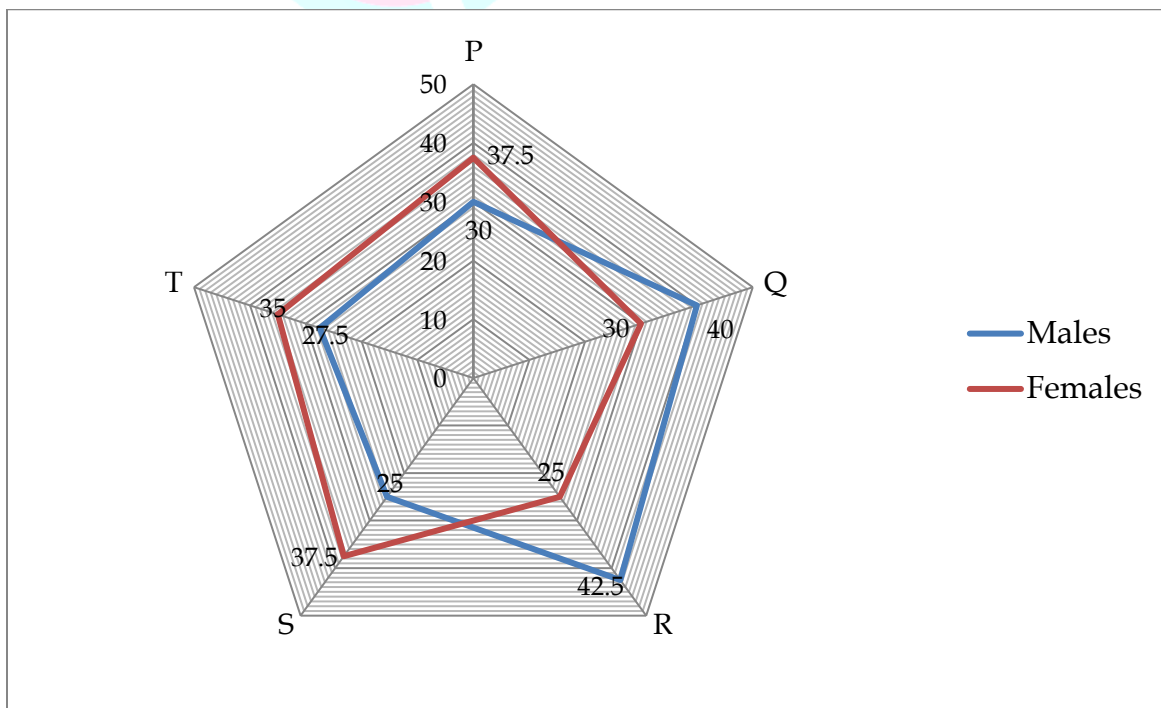
Q126. What is the average number of females in all the universities together?

(a) 3300000   (b) 350000   (c) 320000

(d) 3200000   (e) None of these

Q127. What is the total number of students (males and females together) in University P and R together?

(a) 1300000   (b) 1350000   (c) 1400000

(d) 14500000   (e) None of these

Q128. What is the respective ratio of the number of females from University P and Q together to the number of males in the Universities R and T together?

(a) 27 : 32   (b) 27 : 28   (c) 25 : 28

(d) 28 : 27   (e) None of these

Q129. The number of males in University Q are what per cent of the total number of students (males and females together) in University S?

(a) 68   (b) 62   (c) 66

(d) 64   (e) None of these

Q130. If the total number of males in University T increases by 50%, what would be the total number of students (males and females together) in that university?

(a) 7526000   (b) 76250000   (c) 7625000

(d) 75260000   (e) None of these

S126.Ans.(a)

Sol.

Required No. $= \frac{37.5+30+25+37.5+35}{5} = \frac{165}{5}$ lakhs $= 3300000$

S127. Ans.(e)

Sol. Required No.$(30 + 37.5 + 42.5 + 25)$

=135 lakhs = 13500000

S128. Ans.(b)

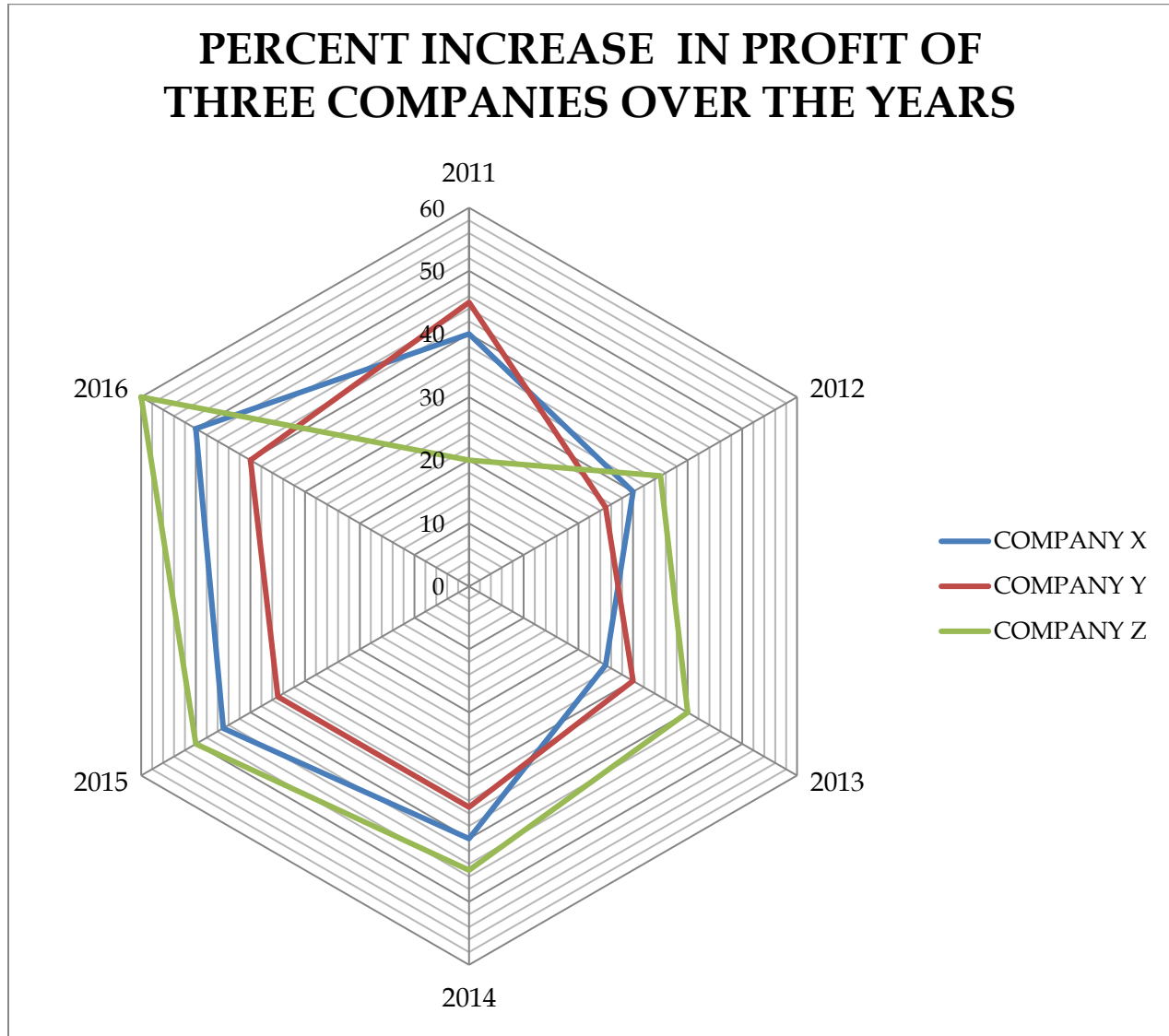**Sol.** Required Ratio = $(37.5 + 30) : (42.5 + 27.5)$

= 27 : 28

S129. Ans.(d)

Sol. Required % $= \frac{40}{25 + 37.5} \times 100$

= 64%

S130. Ans.(c)

Sol. Required no. $= \left(27.5 \times \frac{150}{100}\right) + 35$

= 76.25 lakhs

= 7,62,5000

Directions (131-135): Study the graph carefully to answer the questions that follow.

PERCENT INCREASE IN PROFIT OF THREE COMPANIES OVER THE YEARS

Q131. If profit for company Y in 2012 is 2000 and expenditure in 2013 for company Y is 50,000, then what is the total revenue in 2013 for Y? Give that total revenue = expenditure + profit.
(a) 52600   (b) 54200   (c) 53280
(d) 55800   (e) None of these

Q132. If profit in year 2015 for company Z is 3000 and profit of company X in 2013 is equal to profit of company Z in 2014 then what is the profit of company X in 2013
(a) 1500   (b) 4000   (c) 3500
(d) 2000   (e) 2500

Q133. What is the average percentage increase in profit for company Y over all the years.
(a) 49%   (b) 32%   (c) 23%
(d) 38%   (e) 35%

Q134. What was the approximate percent increase in percent increase of profit of company X in the year 2014 from its previous year
(a) 60%   (b) 65%   (c) 55%
(d) 50%   (e) 70%

Q135. If profit earned by company Y in 2014 is 27,000 and by company Z in 2014 is 43500 then what is the total profit earned by them in year 2013?
(a) 25,000   (b) 35,000   (c) 40,000
(d) 50,000   (e) None of these

S131. Ans.(a)
Sol. Profit in 2013 = $2000 \times \frac{130}{100}$
= 2600
Total revenue = 50,000 + 2600
= 52600

S132. Ans.(d)
Sol. Profit of company X in 2013 = $\frac{3000 \times 100}{150}$
= 2000

S133. Ans.(e)
Sol. Required average = $\frac{45 + 25 + 30 + 35 + 35 + 40}{6}$
= $\frac{210}{6}$
= 35%

S134. Ans.(a)
Sol. Required percentage = $\frac{40 - 25}{25} \times 100$
= $\frac{15}{25} \times 100$
= 60%

S135. Ans.(d)
Sol. Profit earned by Y in 2013 = $\frac{27000 \times 100}{135}$
= 20,000
Profit earned by Z in 2013 = $\frac{43500 \times 100}{145}$
= 30,000
Total profit = 50,000
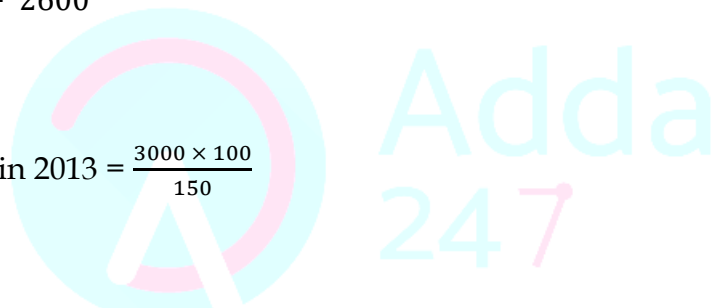
Directions (136-140): Study the following graph carefully and answer the following question.

The graph below represents the production (in tonnes) and sales (in tonnes) of a company X from 2010-2015
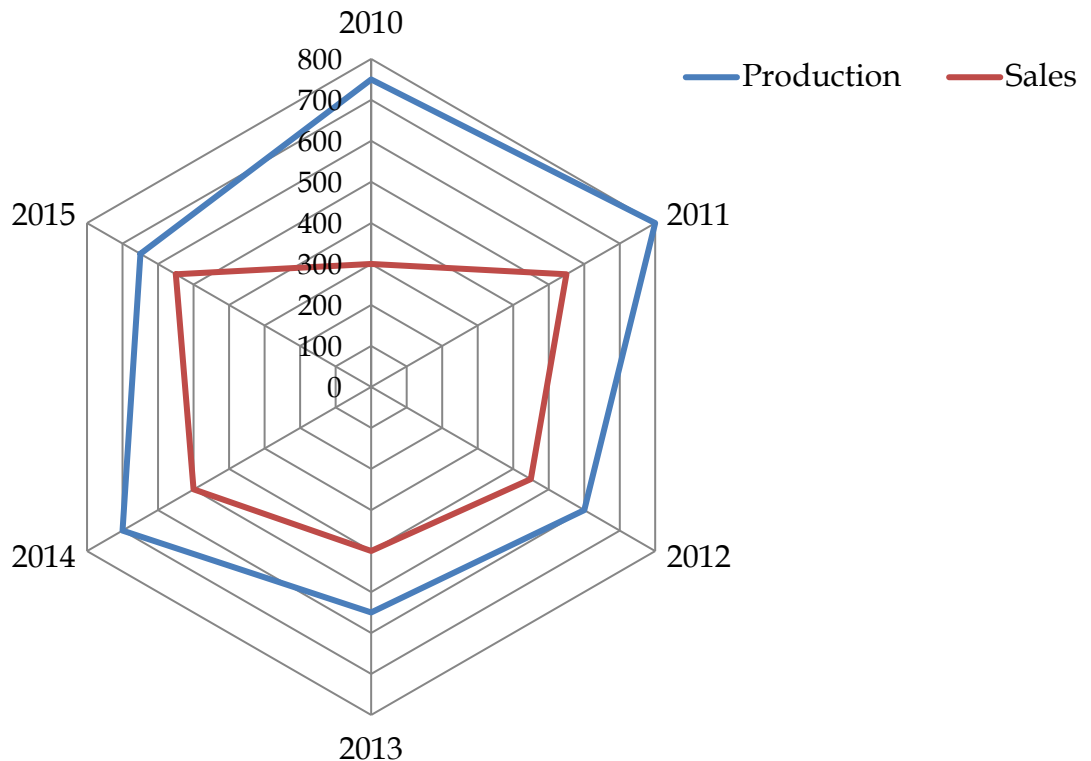
Q136. If production of company X and another company Y is in the ratio 14 : 13 in year 2014 then production of company Y in 2014 is what percent more or less than production of company X in 2010.

(a) $13\frac{1}{3}\%$

(b) $33\frac{1}{3}\%$

(c) $66\frac{2}{3}\%$

(d) $16\frac{2}{3}\%$

(e) None of these

Q137. If production of company X in 2016 is 120% of its production in 2015 then what is the ratio of sales company X in 2010 to the production of company X in 2016.

(a) $\frac{7}{9}$

(b) $\frac{13}{20}$

(c) $\frac{20}{13}$

(d) $\frac{5}{13}$

(e) $\frac{7}{13}$

Q138. If production cost is Rs. 1,500 per tonne and sale is at the rate of Rs. 2,800 per tonne over all years then what is the ratio of profit or loss of company X in 2013 to the profit or loss in year 2014. (Profit = Income through sales – Production cost)

(a) $\frac{59}{70}$

(b) $\frac{20}{23}$

(c) $\frac{53}{94}$

(d) $\frac{27}{38}$

(e) None of these

Q139. If production cost in year 2013 is 150 per tonne and production cost increases by 10% every year after 2013 then what is the average production cost of company X over all years after year 2013?

(a) 12,20,239

(b) 1,16,737.5

(c) 2,22,467

(d) 1,33,647

(e) None of these

Q140. If 35% of production of company X in 2010 is added to the sale of company X in 2012 then total sale of company X in 2012 is what percent of the total sale of company X over all the years now? (approximately)

(a) 14%

(b) 18%

(c) 35%

(d) 28%

(e) 24%

S136. Ans.(a)

Sol. Production of company Y in 2014 = $\frac{700}{14} \times 13 = 650$

Required percentage = $\frac{100}{750} \times 100$

$= \frac{40}{3}\%$

$13\frac{1}{3}\%$ less

S137. Ans.(d)

Sol. Production of company X in 2016 = $\frac{120}{100} \times 650 = 780$

Required ratio = $\frac{300}{780}$

$= \frac{5}{13}$

S138. Ans.(a)

Sol. Cost of production in 2013 = 1500 × 550

= Rs. 8,25,000

Total Income through sales = 2800 × 400

= Rs. 11, 20,000

Profit in 2013 = 11,20,000 − 8,25,000

= Rs. 2,95,000

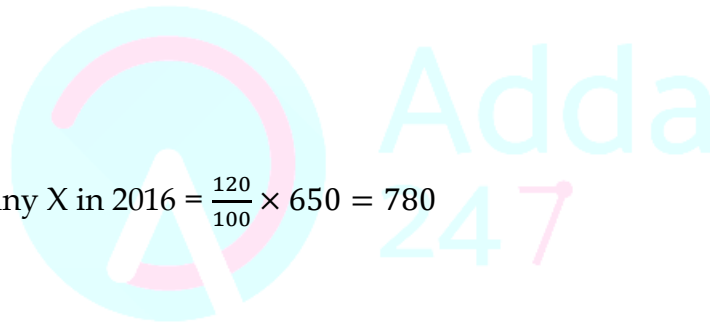Cost of production in 2014 = Rs. 1500 × 700

= Rs. 10,50,000

Total Income through sales = Rs. 2800 × 500

= Rs. 14,00,000

Profit in 2014 = 3,50,000

Required ratio = $\frac{295}{350} = \frac{59}{70}$

S139. Ans.(b)
Sol. Total production cost in 2014 and 2015 = 165 × 700 + 181.5 × 650
= 1,15,500 + 1,17,975
= 2,33,475
Required average = $\frac{2,33,475}{2}$ = 1,16,737.5

S140. Ans.(e)
**Sol.** Total sale of company X in 2012 = $450 + \frac{35}{100} \times 750 = 712.5$
Required percentage = $\frac{712.5}{300 + 550 + 450 + 400 + 500 + 550 + 262.5} \times 100$
$= \frac{712.5}{3012.5} \times 100 = 23.65\% \sim 24\%$

Directions (141-145): Study the following pie-chart and table carefully and answer the questions given below:
Percentage wise distribution of the number of mobile phones sold by a shopkeeper during six months

Total number of mobile phones sold = 45000
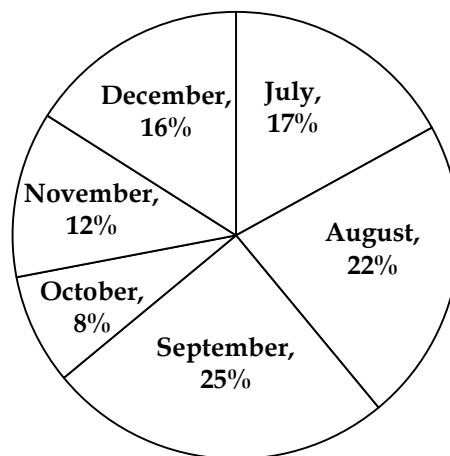
The ratio between the numbers of mobile phones sold of Company A and Company B during six months

Month	Ratio
July	8 : 7
August	4 : 5
September	3 : 2
October	7 : 5
November	7 : 8
December	7 : 9

Q141. What is the ratio of the number of mobile phones sold of Company B during July to those sold during December of the same company?
(a) 119 : 145   (b) 116 : 135   (c) 119 : 135
(d) 119 : 130   (e) None of these

Q142. If 35% of the mobile phones sold by Company A during November were sold at a discount, how many mobile phones of Company A during that month were sold without a discount?
(a) 882   (b) 1635   (c) 1638
(d) 885   (e) None of these

Q143. If the shopkeeper earned a profit of Rs. 433 on each mobile phone sold of Company B during October, what was his total profit earned on the mobile phones of that company during the same month?
(a) Rs. 6,49,900   (b) Rs. 6,45,900   (c) Rs. 6,49,400
(d)Rs. 6,49,500   (e) None of these

Q144. The number of mobile phones sold of Company A during July is approximately what percent of the number of mobile phones sold of Company A during December?
(a) 110   (b) 140   (c) 150
(d) 105   (e) 130

Q145. What is the total number of mobile phones sold of Company B during August and September together?
(a) 10000   (b) 15000   (c) 10500
(d) 9500   (e) None of these

S141. Ans.(c)
Sol.

Total number of mobiles sold in the month of July = $45000 \times \frac{17}{100} = 7650$

Mobile phones sold by Company B in the month of July = $7650 \times \frac{7}{15} = 3570$

Total numbers of mobile phones sold in the month of December = $45000 \times \frac{16}{100} = 7200$

Mobile phones sold by Company B in the month of December = $7200 \times \frac{9}{16} = 4050$

∴ Required ratio = $\frac{3570}{4050} = \frac{357}{405} = \frac{119}{135} = 119 : 135$

S142. Ans.(c)
Sol.

Number of mobile phones sold in the month of November = $45000 \times \frac{12}{100} = 5400$

Number of mobile phones sold by Company A in the month of November = $5400 \times \frac{7}{15} = 2520$

∴ Number of mobile phones sold without discount in the month of November by Company A

= $2520 \times \frac{65}{100} = 2520 \times 0.65 = 1638$

S143. Ans. (d)
Sol.

Number of mobile phones sold in the month of October = $45000 \times \frac{8}{100} = 3600$

∴ Number of mobile phones sold by Company B in the month of October = $3600 \times \frac{5}{12} = 1500$

∴ Total profit earned by Company B in the month of October = $1500 \times 433 = 649500$

S144. Ans.(e)

Sol.

Number of mobile phones sold in the month of July = 45000 $\times \frac{17}{100}$ = 7650

Number of mobile phones sold by Company A in the month of July = 7650 $\times \frac{8}{15}$ = 4080

Number of mobile phones sold in the month of December = 45000 $\times \frac{16}{100}$ = 7200

Number of mobile phones sold by Company A in the month of December = 7200 $\times \frac{7}{16}$ = 3150

∴ Required % = $\frac{4080}{3150} \times 100$ = 129.52 ≈ 130

S145. Ans.(a)

Sol.

Number of mobile phones sold in the month of August = $\frac{22}{100} \times$ 45000 = 9900

Number of mobile phones sold in the month of September = $\frac{25}{100} \times$ 45000 = $\frac{1}{4} \times$ 45000 = 11250

Number of mobile phones sold by Company B in the month of August = 9900 $\times \frac{5}{9}$ = 5500

Number of mobile phones sold by Company B in September = 11250 $\times \frac{2}{5}$ = 4500

Total number of mobile phones sold in August and September by Company B = 5500 + 4500 = 10000
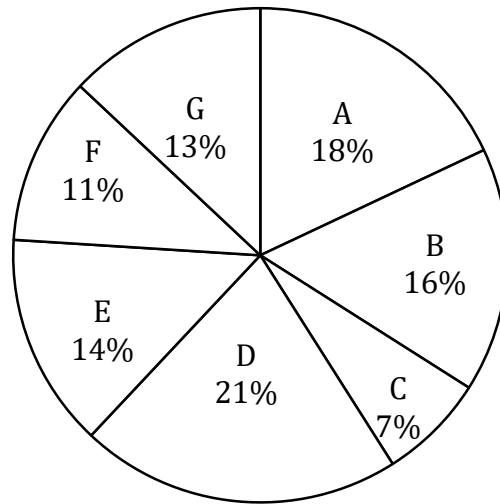
Directions (146-150): These questions based on the following graphs

Classification of appeared candidates in a competitive test from different states and qualified candidates from those states.

Appeared candidates = 45000.
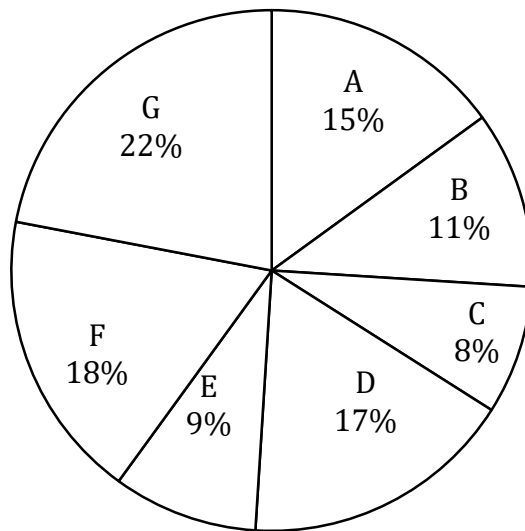
Qualified candidates = 9000

Q146. What is the ratio of the number of appeared candidates from states C and E together to that of the appeared candidates from sates A and F together?
(a) 17 : 33
(b) 11 : 13
(c) 13 : 27
(d) 17 : 27
(e) None of these

Q147. In which state, the percentage of qualifies candidates with respect to that of appeared candidates is minimum?
(a) C
(b) F
(c) D
(d) E
(e) G

Q148. What is the difference between the number of qualified candidates of states D and those of G?
(a) 690
(b) 670
(c) 780
(d) 720
(e) None of these

Q149. What is the percentage of qualified candidates with respect to appeared candidates from states B and C taken together? (rounded to two decimal places)
(a) 23.11
(b) 24.21
(c) 21.24
(d) 23
(e) None of these

Q150. What is the ratio between the number of candidates qualified from states B and D together to the number of candidates appeared from states 'C', respectively?
(a) 8 : 37
(b) 11 : 12
(c) 37 : 40
(d) 7 : 37
(e) None of these

S146. Ans.(a)
Sol. Required ratio $= \frac{8+9}{15+18} = 17:33$.

S147. Ans.(e)
Sol. Here, do not find the ratio of number of qualified candidates that of the appeared. Simply check the ratio of % qualified candidates with respect to the appeared is the least for which state. Ans. = G.

S148. Ans.(d)
Sol. Required difference = (21 - 13)% of 9000 = 720.
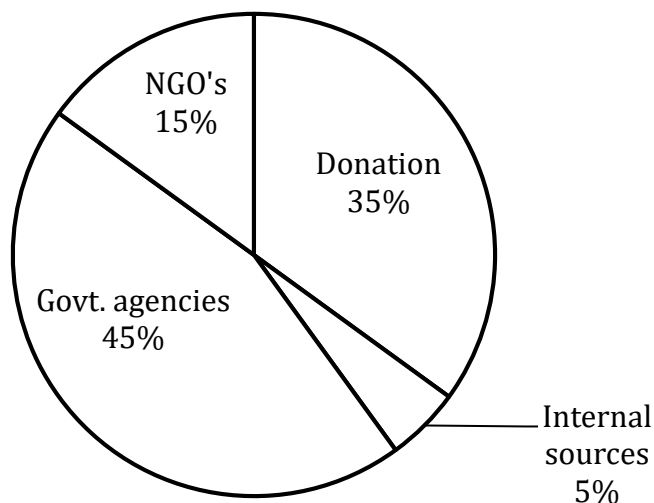
S149. Ans.(b)
Sol. Required % = $\frac{(16 + 7)\% \; of \; 9000}{(11 + 8)\% \; of \; 45000} \times 100 = 24.21\%$
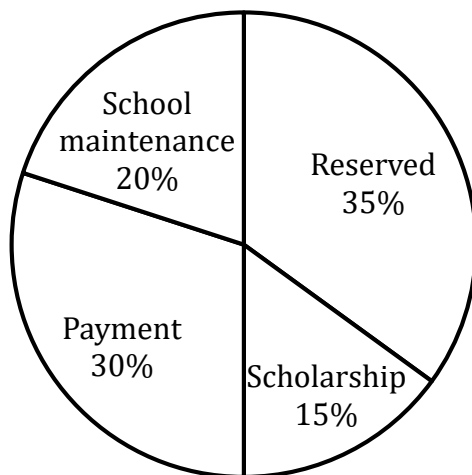
S150. Ans.(c)
Sol. Required ratio = $\frac{(16 + 21)\% \; of \; 9000}{8\% \; of \; 45000} = 37 : 40$

Directions (151-155): Study the following pie-charts carefully and answer the questions given below it.
The entire fund that school gets from different sources in equal to Rs. 500 lakh

Sources of funds in school

Uses of funds by school

Q151. What is the difference between the funds acquired by school from NGO's and internal sources?
(a) Rs. 50 lakh   (b) Rs. 45 lakh   (c) Rs. 75 lakh
(d) Rs. 25 lakh   (e) None of these

Q152. If the school managed school maintenance from the government agencies fund only, then how much fund from government agencies would still left for other use?
(a) Rs. 120 lakh (b) Rs. 150 lakh (c) Rs. 110 lakh
(d) Rs. 95 lakh (e) None of these

Q153. If scholarship has to be paid out of the donation fund, then what is the approximate per cent of donation fund used for his purpose?
(a) 43% (b) 53% (c) 37%
(d) 45% (e) 32%

Q154. What is the total amount used by the school for payment?
(a) Rs. 100 lakh (b) Rs. 110 lakh (c) Rs. 150 lakh
(d) Rs. 140 lakh (e) None of these

Q155. What amount of the fund is acquired by the school from government agencies?
(a) Rs. 220 lakh (b) Rs. 310 lakh (c) Rs. 255 lakh
(d) Rs. 225 lakh (e) None of these

S151. Ans.(a)
Sol. Required difference = (Percentage of fund acquired from NGO-Percentage of fund acquired from internal sources) of 500 lakh
= (15 - 5)% of 500 lakh = $\frac{500 \times 10}{100}$ lakh = Rs. 50 lakh

S152. Ans.(e)
Sol. Fund from government agencies
= $\frac{500 \times 45}{100}$ = Rs. 225 lakh
Expenses in school maintenance
= $\frac{500 \times 20}{100}$ = Rs. 100 lakh
∴ Remaining found = (225 - 100) lakh
= Rs. 125 lakh

S153. Ans.(a)
Sol. Fund from donation = $\frac{500 \times 35}{100}$ = Rs. 175 lakh
Scholarship amount = $\frac{15 \times 500}{100}$ = Rs. 75 lakh
∴ Required percentage = $\frac{75}{175} \times 100 = 42.85\%$
= 43% (approx.)

S154. Ans.(c)
Sol. Total amount used by the school for payment
= $\frac{500 \times 30}{100}$ = Rs. 150 lakh

S155. Ans.(d)
Sol. Fund acquired from government agencies
= $\frac{500 \times 45}{100}$ = Rs. 225 lakh

Directions (156-160): In the following table, the Investment and profit of three Companies in different countries is given.

Investment (in mn $.)				Profit (in mn $.)		
State	TCS	Infosys	Accenture	TCS	Infosys	Accenture
Singapore	15000	—	25000	—	8000	12500
UK	—	7000	8000	—	—	14000
UAE	4000	5000	4500	—	—	—
Qatar	9000	10000	—	4500	6000	—
Malaysia	—	—	17000	20000	30000	40000

Note: Some values are missing. You have to calculate these values as per data given in the questions:-

Q156. If TCS invested his amount in SINGAPORE state for 9 years and Accenture invested his amount in the same country for 10 years then find the total profit made by all of them from SINGAPORE?
(a) mn $ 29250
(b) mn $ 24250
(c) mn $ 27250
(d) mn $ 31200
(e) None of these

Q157. If the total profit earned from UK by all of them is mn $ 32375 and each invested for 9 years then find the ratio of investment of TCS in UK to the profit of Infosys from SINGAPORE ?
(a) 16 : 7
(b) 7 : 16
(c) 8 : 13
(d) 13 : 8
(e) None of these

Q158. If TCS, Infosys and Accenture invested in UAE for 5 years, 8 years and 6 years respectively then profit earned by Accenture from UAE is what % of the profit earned by TCS and Infosys together from the same Country, if total profit earned by all of them from UAE state is 8700 mn $.
(a) 45%
(b) 50%
(c) 55%
(d) 40%
(e) None of these

Q159. In Malaysia state total Investment of TCS and Infosys is 85000 mn $, while TCS and Infosys invested their amount for 4 years and 6 years respectively in the same country, then find the number of years that accenture invested his amount ?
(a) 8 years
(b) 9 years
(c) 20 years
(d) Can't be determined
(e) None of these

Q160. Average Investment made by all of them in Qatar is $ 10,000 mn and average profit earned by all of them from the same state is $ 6000 mn, then profit earned by Accenture in the same country is what percent more/less than the amount invested by Accenture in the same state?
(a) $35\frac{1}{3}\%$
(b) $37\frac{6}{7}\%$
(c) $32\frac{7}{11}\%$
(d) $33\frac{7}{11}\%$
(e) $31\frac{9}{11}\%$

S156. Ans.(c)
Sol.

$$\frac{15000 \times 9}{25000 \times 10} = \frac{x}{12500}$$

$$\frac{27}{50} = \frac{x}{12500}$$

x = $ 6750 mn

∴ Required profit = 6750 + 8000 + 12500 = $ 27250 mn

S157. Ans.(b)
Sol.

$$\frac{7000}{8000} = \frac{P_{infosys}}{14000}$$

$P_{Infosys} = $ $ 12250mn

$P_{tcs} = 32375 - 12250 - 14000$

$P_{tcs} = $ $ 6125mn

Let Investment of TCS in UK = x

$$\therefore \frac{x}{7000} = \frac{6125}{12250}$$

x = $ 3500mn

Required Ratio = (3500) : (8000)

= 7 : 16

S158. Ans.(a)
Sol.

	TCS	:	Infosys	:	Accenture
Profit :	(4000×5)	:	(5000×8)	:	(4500×6)
	20	:	40	:	27

$\therefore P_{tcs} = \frac{20}{87} \times 8700$

=$ 2000 mn

$P_{infosys} = \frac{40}{87} \times 8700 = $ $ 4000 mn

$P_{accenture} = $ $ 2700 mn

Required % $= \frac{2700}{6000} \times 100 = 45\%$

> Trick :
>
> Required value =
> $\frac{27}{40+20} \times 100 = 45\%$

S159. Ans.(c)
Sol.

$$\frac{x \times 4}{(85,000 - x) \, 6} = \frac{20,000}{30,000}$$

$$\frac{2x}{3 \, (85,000 - x)} = \frac{2}{3}$$

$6x = 2 \times 3 \times 85000 - 6x$

$12x = 6 \times 85000$

x = $ 42500 mn

$I_{tcs} = $ $ 42500 mn

$\therefore I_{infosys} = \$ 42500$ mn

Let Required years = y

$\therefore \dfrac{42500 \times 6}{17{,}000 \times y} = \dfrac{30{,}000}{40{,}000}$

y = 20 years

S160. Ans.(e)

Sol.

$I_{accenture} = 30000 - 9000 - 10000$

$= \$ 11000$ mn

$P_{accenture} = 18000 - 4500 - 6000$

$= \$ 7500$ mn

Required % = $\dfrac{11000 - 7500}{11000} \times 100$

$= 31\dfrac{9}{11}\%$

Directions (161-165): A person purchased 5 Gadgets from a shop and sold them online. Given below is the data showing cost price, selling price and profit/loss percentage.

	C.P. (in Rs.)	Profit/Loss%	S.P. (in Rs.)
Smartphone	32445	—	40556.25
Laptop	—	Profit-15%	40940
Tablet	22150	Loss-12%	—
Digital camera	28295	—	31140
Smart Watch	—	Profit-25%	7075

Q161. Cost price of Laptop is what percent of selling price of Tablet? (approximate)

(a) 138%   (b) 182%   (c) 142%

(d) 154%   (e) 186%

Q162. If there has been a profit of 12% on Tablet instead of 12% loss. Then the new S.P. is how much more than the original S.P.?

(a) 5216   (b) 5396   (c) 5336

(d) 5316   (e) None of these

Q163. Profit percentage on Digital camera is what percent more/less than profit percentage on Laptop?

(a) 50% more   (b) 33.34% less   (c) 33.67% more

(d) 50% less   (e) 150% less

Q164. **What is the ratio between profit percentage of Smart Watch to profit percentage of Smartphone?**

(a) 5 : 3 (b) 3 : 2 (c) 3 : 5

(d) 2 : 5 (e) None of these

Q165. What is the overall profit/loss percentage? (approximate)

(a) 22.12% profit (b) 12.12% profit (c) 14.14% profit

(d) 33.12% loss (e) 15.15% loss

S161. Ans.(b)

Sol. Let cost price of Laptop $= x$

$x \times \dfrac{(100 + 15)}{100} = 40940$

$x = 35600$

Selling price of Tablet $= 22150 \times \dfrac{(100 - 12)}{100} = 19492$

Required percentage $= \dfrac{35600}{19492} \times 100 \approx 182\%$

S162. Ans.(d)

Sol. Original S.P.$= 22150 \times \dfrac{88}{100} = 19492$

New S.P.$= 22150 \times \dfrac{(100 + 12)}{100} = 24808$

Difference = 5316

S163. Ans.(b)

Sol. Percentage profit on Digital camera $= \dfrac{31140 - 28295}{28295} \times 100 = 10.05\%$

Profit percentage on Laptop = 15%

Required percentage $= \dfrac{(15 - 10)}{15} \times 100 = \dfrac{100}{3} = 33.34\% \; less$

S164. Ans.(e)

Sol. Profit percentage on $Smartphone = \dfrac{40556.25 - 32445}{32445} \times 100 = 25\%$

Profit percentage on Smart Watch= 25%

Required Ratio = 1 : 1

S165. Ans.(b)

Sol. Overall cost price of all items together = 32445 + 35600 + 22150 + 28295 + 5660 = 124150

Overall selling price of all items together = 40556.25 + 40940 + 19492 + 31140 + 7075 = 139203.25

Profit percentage $= \dfrac{139203.25 - 124150}{124150} \times 100 \approx 12.12\%$ profit

Directions (166-170): Study the table and answer the given questions.

Data related to the number of employees in five different companies in December 2012

Company	Total number of Employees	Out of total number of employees		
		Percentage Of Science graduates	Percentage of Commerce graduates	Percentage of Arts graduates
M	1050	32%	–	–
N	700	–	31%	40%
O	–	30%	30%	–
P	–	–	40%	20%
Q	–	35%	50%	–

Note:

(I) Employees of the given companies can be categorised only in three types: Science graduates, Commerce graduates and Arts graduates

(II) A few values are missing in the table (indicated –). A candidate is expected to calculate the missing value, if it is required to answer the given question, on the basis of the given data and information.

Q166. What is the difference between the number of Arts graduate employees and Science graduate employees in Company N?

(a) 87   (b) 89   (c) 77

(d) 81   (e) 73

Q167. The average number of Arts graduate employees and commerce graduate employees in Company Q was 312. What was the total number of employees in Company Q?

(a) 920   (b) 960   (c) 1120

(d) 1040   (e) 1080

Q168. If the ratio of the number of Commerce graduate employees to that of Arts graduate employees in Company M was 10 : 7, what was the number of Arts graduate employees in M?

(a) 294   (b) 266   (c) 280

(d) 308   (e) 322

Q169. The total number of employees in Company N increased by 20% from December 2012 to December 2013. If 20% of the total number of employees in Company N in December 2013 were Science graduates, what was the number of Science graduate employees in company N in December 2013?

(a) 224   (b) 266   (c) 294

(d) 252   (e) 168

Q170. The total number of employees in Company P was 3 times the total number of employees in Company O. If the difference between the number of Arts graduate employees in Company P and that in Company O was 180, what was the total number of employees in Company O?

(a) 1200   (b) 1440   (c) 720

(d) 900   (e) 1080

S166. Ans.(c)
Sol. Total number of employees in company N = 700
Percentage of Science graduate employees = [100 – (31 + 40)] = 29%
Now, percentage difference between Arts graduate and science graduate employees
= (40 – 29)% = 11%
11% of 700 = 77
Therefore, difference = 77

S167. Ans.(b)
Sol. The percentage of Arts graduate employees in Company Q = 100 – 35 – 50 = 15%
Now, the percentage of Arts graduate employees and Commerce and Arts = 50 + 15 = 65%
Average = 312
Therefore, the total number of employees in commerce and Arts = 2 × 312
Let the total employees in Company Q be x
Then, 65% of x = 2 × 312
x = 960

S168. Ans.(a)
Sol. The percentage of commerce graduate and Arts graduate employees in company M
= 100 – 32 = 68%
Now, the percentage of Arts graduate employees = $\frac{68 \times 7}{17}$ = 28%
the percentage of Commerce graduate employees = $\frac{68 \times 10}{17}$ = 40%
The number of arts graduate employees in company M = $\frac{1050 \times 28}{100}$ = 294

S169. Ans.(e)
Sol. The number of employees in company N in December 2012 = 700
The number of employees in company N in December 2013 = $\frac{700 \times 120}{100}$ = 840
Number of Science graduate employees in company N in December 2013 = $\frac{20 \times 840}{100}$ = 168

S170. Ans.(d)
Sol. The percentage of Arts graduate employees in company O = 100 – 30 – 30 = 40%
The percentage difference between Arts graduate employees in company O and P = 40 – 20 = 20%
Now, let the number of employees in company O be x
Then, x × 20% = 180
x = 900

Directions (171-175): Study the table carefully and answer the given questions.
Data related to number of candidates appeared and qualified in a competitive exam from 2 states during 5 years

Years	State P		State Q	
	Number of appeared candidates	Percentage of appeared candidates who qualified	Number of appeared candidates	Percentage of appeared candidates who qualified
2006	450	60%	–	30%
2007	600	43%	–	45%
2008	–	60%	280	60%
2009	480	70%	550	50%
2010	380	–	400	–

Q171. Out of the number of qualified candidates from State P in 2008, the respective ratio of male and female candidates is 11 : 7. If the number of female qualified candidates from State P in 2008 is 126, what is the number of appeared candidates (both male and female) from State P in 2008?
(a) 630　　　　　　　　(b) 510　　　　　　　　(c) 570
(d) 690　　　　　　　　(e) 540

Q172. The number of appeared candidates from State Q increased by 100% from 2006 to 2007. If the total number of qualified candidates from State Q in 2006 and 2007 together is 408, what is the number of appeared candidates from State Q in 2006?
(a) 380　　　　　　　　(b) 360　　　　　　　　(c) 340
(d) 320　　　　　　　　(e) 300

Q173. What is the difference between the number of qualified candidates from State P in 2006 and that in 2007?
(a) 12　　　　　　　　(b) 22　　　　　　　　(c) 14
(d) 24　　　　　　　　(e) 16

Q174. If the average number of qualified candidates from State Q in 2008, 2009 and 2010 is 210, what is the number of qualified candidates from State Q in 2010?
(a) 191　　　　　　　　(b) 195　　　　　　　　(c) 183
(d) 187　　　　　　　　(e) 179

Q175. If the respective between the number of qualified candidates from State P in 2009 and 2010 is 14 : 9, what is the number of qualified candidates from State P in 2010?
(a) 252   (b) 207   (c) 216
(d) 234   (e) 198

S171. Ans.(e)
Sol. No. of qualified candidates in 2008 $= \frac{3x}{5}$
No. of female qualified from state P
$= \frac{7}{18} \times \frac{3x}{5}$
$= \frac{7x}{30}$
$\frac{7x}{30} = 126$
$x = 30 \times 18 = 540$
∴ Required no. of appeared candidates = 540

S172. Ans.(c)
Sol. Let no. of appeared candidates from state Q in 2006 = 100
Let no. of appeared candidates from state in 2007 = 200
∴ $30 + 90 \rightarrow 408$
$1 \rightarrow \frac{408}{120}$
$100 \rightarrow \frac{408}{120} \times 100 = 340$

S173. Ans.(a)
Sol. Required difference $= \frac{60}{100} \times 450 - \frac{43}{100} \times 600$
= 270 – 258
= 12

S174. Ans.(d)
Sol. Let required no. of candidates = x
∴ $\frac{28 \times 6 + 55 \times 5 + x}{3} = 210$
168 + 275 + x = 630
x = 630 – 443
x = 187

S175. Ans.(c)
Sol.
$\frac{48 \times 7}{x} = \frac{14}{9}$
x = 24 × 9
x = 216
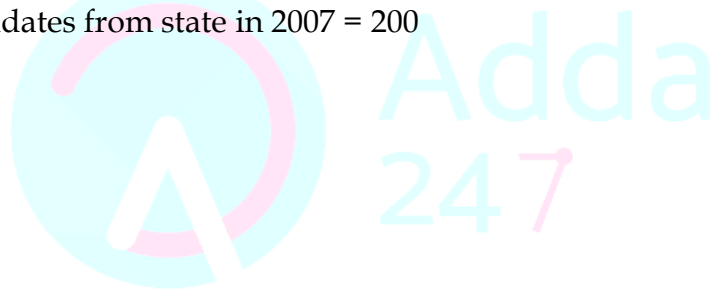
Directions (176-180): In the following table, investments and profit of three persons is given for different years in a joint business.

	Investments (in Rs.)			Profit (in Rs.)		
Year	A	B	C	A	B	C
2012	25500	31500	34500	127500	—	172500
2013	—	7500	—	—	18750	138750
2014	—	10050	12000	—	—	21000
2015	—	—	13500	75000	66000	36000
2016	16500	45000	—	—	—	—

Note:

1. Apart from year 2015, they invested the amounts for same period.

2. Some values are missing. You have to calculate these value as per given data.

Q176. If the total profit in 2014 is 59587.50Rs. , then find the ratio of the investment of B in 2013 to the investment of A in 2014.

(a) 5 : 8   (b) 10 : 27   (c) 5 : 7

(d) 5 : 9   (e) None of these

Q177. In year 2015, A and B invested their amount for 6 months and 4 months respectively and B invested Rs.24750 then find the number of months that C invested his amount for?

(a) 3 months   (b) 6 months   (c) 2 months

(d) 4 months   (e) 1 month

Q178. Total profit earned by B in year 2012 is how much less (in Rs.) than the profit earned by him in the year 2014?

(a) Rs. 176575.5   (b) Rs. 139912.5   (c) Rs. 193825

(d) Rs. 185050   (e) None of these

Q179. Investment made by A in 2016 is approximately what % more/less than the investment made by C in 2013?

(a) 31%   (b) 70%   (c) 40%

(d) 68%   (e) 79%

Q180. Total profit earned by all in 2016 is 578340Rs. and the ratio of investment made by A and B together and investment made by B and C together is 123 : 137. Then find the difference between the profit made by A and C in 2016 ?

(a) 47628   (b) 59428   (c) 69478

(d) 45928   (e) None of these

S176. Ans.(a)

Sol. Let profit of B in 2014 = x

$$\therefore \frac{12000}{21000} = \frac{10.050}{x}$$

x = 17587.5 Rs.

Profit of A in 2014 = 59587.5 – 178587.5 – 21000

= 21000 Rs.

$$\therefore \text{Required Ratio} = (7500) : \left(\frac{12 \times 21}{21}\right) \times 1000$$

= 7500 : 12000

= 5 : 8

S177. Ans.(d)

Sol. Let C invested for x months, then

$$\frac{24750 \times 4}{13500 \times x} = \frac{66000}{36000}$$

⇒ x = 4

S178. Ans.(b)

Sol. Let profit earned by B in year 2012 = x

Profit earned by B in year 2014 = y

$$\frac{31500}{x} = \frac{34500}{172500}$$

x = 157500 Rs.

And, $\frac{12000}{21000} = \frac{10050}{y}$

y = 17587.5 Rs.

Required Difference = 157500 - 17587.5 = 139912.5

S179. Ans.(b)

Sol. Required % = $\frac{55500-16500}{55500} \times 100$

≈ 70%

S180. Ans.(a)

Sol.

Investment made by C in 2016 = $\frac{(16500 + 45000)}{123} \times 137 - 45000$

= 23500 Rs.

Ratio of their investment = 165 : 450 : 235

= 33 : 90 : 47

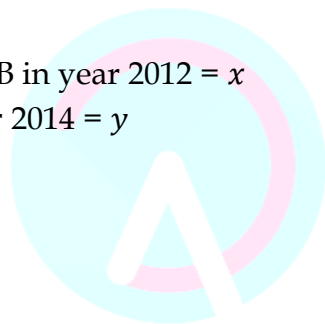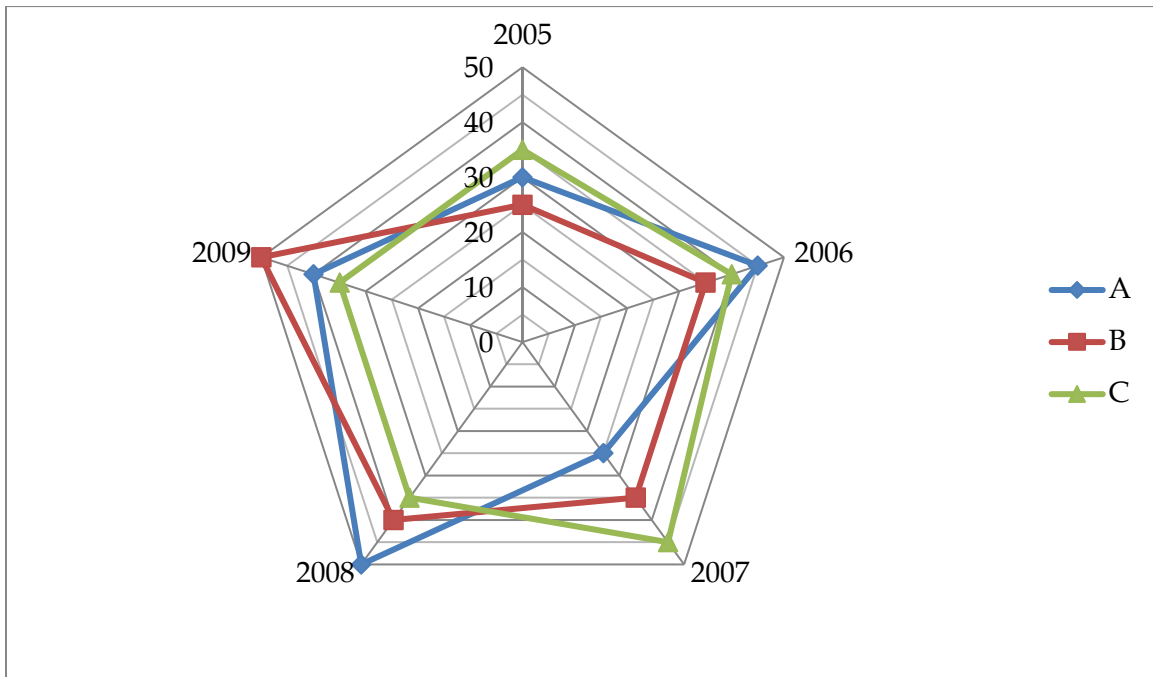Difference = $\frac{(47 - 33)}{170} \times 578340 = 47628$

Directions (181-185): The following bar graph shows the production (in lakh tonnes) of 3 companies A, B and C in different years. Study the graph and answer the following questions:

Q181. The average production (in lakh tonnes) of company A over the given years is:
(a) 32
(b) 36
(c) 38
(d) 35
(e) None of these

Q182. The total production of all 3 companies together in 2008 is what percent more/less than that in 2006? (rounded off to two decimal points)
(a) 4.67%
(b) 5.17%
(c) 5.67%
(d) 4.17%
(e) 6.67%

Q183. The total production of all 3 companies together is 2nd lowest in
(a) 2005
(b) 2006
(c) 2007
(d) 2008
(e) 2009

Q184. What is the percentage decrease in total production of all 3 companies together in 2007 as compared to previous year?
(a) 10.5%
(b) 11.5%
(c) 9.5%
(d) 12.5%
(e) None of these

Q185. What is the ratio of total production of company B to that of company C in all years together?
(a) 38 : 35
(b) 38 : 37
(c) 35 : 38
(d) 37 : 38
(e) None of these

S181. Ans.(c)
Sol. Required average = $\frac{190}{5}$ = 38 lakh tonnes

S182. Ans.(d)
Sol. Required percentage = $\frac{(125-120)}{120} \times 100 = 4.17\%$

S183. Ans.(c)
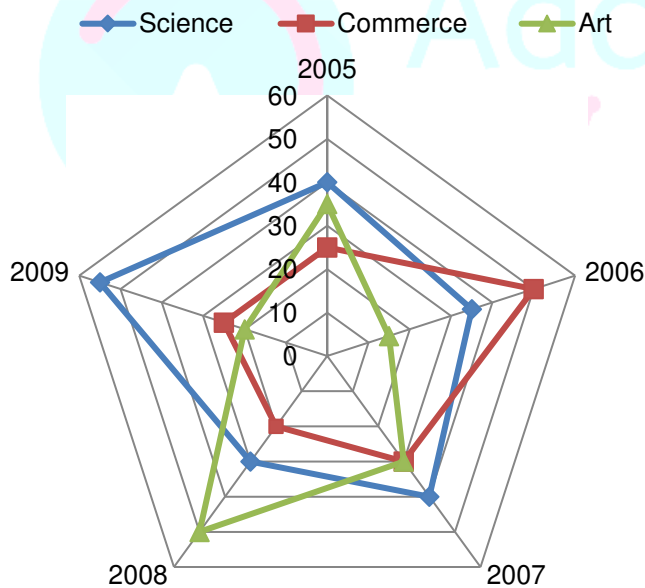**Sol.** Total production is 2nd lowest in 2007 i.e. 105 lakh tonnes

S184. Ans.(d)
Sol. Required percentage = $\frac{15}{120} \times 100 = 12.5\%$

S185. Ans.(d)
Sol. Required ratio = $\frac{185}{190}$ = 37 : 38

Directions (186-190): Read the following graph and table carefully and answer the questions given below.

Percentage of admitted students in different discipline from 2005 to 2009

Total number of admitted students in different years	
Year	**Total number of students**
2005	12560
2006	14820
2007	13850
2008	16580
2009	11220

Q186. What is the average number of students in Arts in 2008 and 2009 together?

(a) 5182
(b) 5475
(c) 5318
(d) 5267
(e) None of these

Q187. The number of students in Science in 2008 is approximately what percent of the number of students in commerce in 2006?

(a) 67
(b) 72
(c) 63
(d) 58
(e) 78

Q188. What is the difference between the number of students in Science in 2006 and number of students of Commerce in 2008?

(a) 1625
(b) 1546
(c) 1871
(d) 1781
(e) None of these

Q189. What is the difference between the number of students in Arts in 2008 and number of students in Science in 2006?

(a) 3210
(b) 3103
(c) 3325
(d) 3014
(e) None of these

Q190. What is the total number of students in Commerce in all the years?

(a) 28026
(b) 21642
(c) 22510
(d) 19441
(e) None of these

S186. Ans.(d)
Sol. Average $= \frac{10534}{2} = 5267$.

S187. Ans.(a)
Sol. Required percent $= \frac{4974}{7410} \times 100 = 67\%$ (approx.)

S188. Ans.(c)
Sol. Difference = 5187 – 3316 = 1871.

S189. Ans.(b)
Sol. Difference = 8290 – 5187 = 3103

S190. Ans.(e)
Sol. Total number = 20826.

Directions (191-195): There are five students who appeared for RBI Grade B exam. Paper consists of 100 questions with 1 mark for each correct answer and 0.25 marks for each wrong answer.

Students	Questions attempted	Right Questions	Wrong Questions	Marks obtained
Aditya	78	–	–	70.5
Puskar	92	76	–	–
Anshuman	98	–	36	–
Alka	–	30	–	27.25
Avanish	56	–	–	53.50

Q191. Difference between total right number of questions of all students together and total wrong no. of questions of all students together is
(a) 141
(b) 161
(c) 223
(d) 156
(e) None of these

Q192. Marks obtained by Aditya and Puskar together is what % of the marks obtained by Anshuman, Avanish and Alka together? (rounded off to 2 decimal places)
(a) 106.54%
(b) 91.16%
(c) 95.20%
(d) 96.71%
(e) 101.71%

Q193. If the penalty of wrong answer is 0.33 then marks obtained by Aditya, Anshuman and Puskar together is
(a) 192.21
(b) 224.19
(c) 190.86
(d) 219.14
(e) 194.22

Q194. If the passing % marks in the exam is 50 marks than at least how many questions has to be answered right by Puskar? (He attempted 92 questions)
(a) 58
(b) 56
(c) 59
(d) 55
(e) 60

Q195. What is the percent of marks obtained by all of them together?
(a) 59.03%
(b) 53.15%
(c) 52.53%
(d) 45.05%
(e) 55.25%

S191. Ans.(c)
Sol. Required difference = (72 + 76 + 62 + 30 + 54) – (6 + 16 + 36 + 11 + 2)
= 294 – 71 = 223

S192. Ans.(a)
Sol. Required % $= \frac{70.5+72}{53+27.25+53.50} \times 100$
= 106.54%

S193. Ans.(c)
Sol. Required marks = (72 + 76 + 62) – 0.33 (6 + 16 + 36) = 190.86

S194. Ans.(c)
Sol. By options
Let right Questions = 59
∴ marks = $92 - \frac{1}{4}(92 - 59) = 50.75$

S195. Ans.(e)
Sol. Required % $= \frac{70.5 + 72 + 53 + 27.25 + 53.50}{500} \times 100 = 55.25\%$

Directions (196-200): Seven companies A, B, C, D, E, F and G are engaged in production of two items I and II. Comparative data about production of these items by the companies is given in the following graph and table. Study them carefully and answer the questions given below.

Percentage of the total production produced by the seven companies
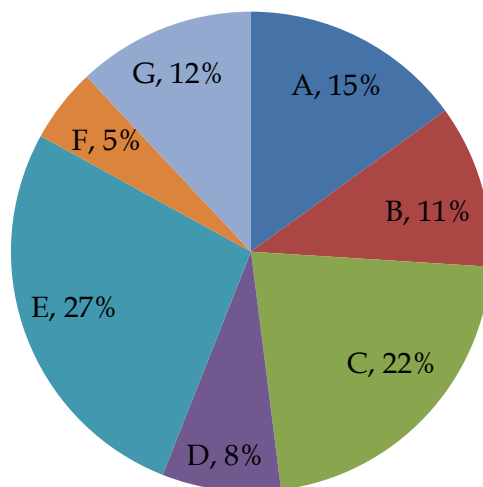
Cost of the total production (both items together) by seven companies = Rs 25 crores
Ratio of production between items I and II and the per cent profit earned for the two items

Company	Ratio of Production		Per cent profit earned	
	Item I	Item II	Item I	Item II
A	2	3	25	20
B	3	2	32	35
C	4	1	20	22
D	3	5	15	25
E	5	3	28	30
F	1	4	35	25
G	1	2	30.	24

Q196. What is the total cost of the production of item I by companies A and C together in Rs crore?
(a) 9.25 (b) 5.9 (c) 4.1625
(d) 4.9 (e) None of these

Q197. What is the amount of profit earned by company D on item II?
(a) Rs 3.125cr (b) Rs 31.25 cr (c) Rs 3.125 lakhs
(d) Rs 31.25 lakhs (e) None of these

Q198. Cost of production of item I by company F is what per cent of the cost of production of item II by company D?
(a) 16% (b) 33.33% (c) 66.67%
(d) 20% (e) None of these

Q199. What is the ratio of the cost of production of item I by company A to the cost of production of item I by company D?
(a) 3 : 5 (b) 1 : 2 (c) 2 : 1
(d) 2 : 3 (e) None of these

Q200. What is the total of the profit earned by company B on production of item I and the profit earned by company A on production of item II?
(a) Rs 9.78 cr (b) Rs 97.8 lakhs (c) Rs 52.8 lakhs
(d) Rs 5.28 cr (e) None of these

S196. Ans.(b)
Sol. Total cost of production by company $A = \frac{15}{100} \times 25 = 3.75$ crores = 3.75 crores

Total cost of production by Company $C = \frac{22}{100} \times 25 = 5.5$ crores

Cost of production of item I by Company $A = \frac{2}{5} \times 3.75 = 1.5$ crores

Cost of production of item I by Company $C = \frac{4}{5} \times 5.5 = 4.4$ crores

∴ Required total cost $= 1.5 + 4.4 = 5.9$ crores

S197. Ans.(d)
Sol. Required profit earned $= \frac{25}{100} \times \frac{5}{8} \times \frac{8}{100} \times 25 = 0.3125$ crores
= 31.25 lakhs

S198. Ans.(d)
Sol. Required %
$$= \frac{\frac{5}{100} \times \frac{1}{5} \times 25}{\frac{8}{100} \times \frac{5}{8} \times 25} \times 100$$
$$= \frac{0.25}{1.25} \times 100 = 20\%$$

S199. Ans.(c)

Sol. Required Ratio

$$= \frac{\frac{15}{100} \times \frac{2}{5} \times 25}{\frac{8}{100} \times \frac{3}{8} \times 25}$$

$$= \frac{30}{500} \times \frac{800}{24}$$

$$= \frac{5 \times 8}{5 \times 4}$$

$$= 2 : 1$$

S200. Ans.(b)

Sol. Required total profit

$$= \left(\frac{32}{100} \times \frac{3}{5} \times \frac{11}{100} \times 25\right) + \left(\frac{20}{100} \times \frac{3}{5} \times \frac{15}{100} \times 25\right)$$

= 0.528 + 0.45

= 0.978 crores

= 97.8 lakhs