All India Mock for IBPS SO Prelims 2024 (Quantitative Aptitude)

Q1. Mohan purchased two cycles at same cost price and he sells the first cycle at the profit of 12%. If profit earned on second cycle is Rs. 360 more than the profit earned on the first cycle and Mohan gets profit of 15% after selling both cycles, then find the cost price of one cycle?
(a) Rs 7200
(b) Rs 6000
(c) Rs 8000
(d) Rs 9600
(e) Rs 10800

Q2. P work for 20 days and remaining work was completed by Q in 36 days. If Q work for 48 days, then remaining work was completed by P in 12 days. Find how much time Q will take to complete the work alone?
(a) 54 days
(b) 66 days
(c) 56 days
(d) 72 days
(e) 62 days

Q3. P and Q started a business and amount invested in the ratio of 3 : 4 respectively and P gets Rs. 2700 as profit share out of total profit of Rs. 5100. Find period of investment of Q is what percent of that of P?
(a) $\frac{100}{3}$%
(b) 50%
(c) $\frac{200}{3}$%
(d) 75%
(e) 70%

Q4. 14 men can complete a work in 8 days and 10 women can complete the same work in 16 days. 7 men & 5 women started the work & worked for only 8 days then, how many men are required to complete the remaining work in four days?
(a) 2
(b) 7
(c) 5
(d) 12
(e) 9

Q5. A bag contains 5 black balls and 4 purple balls. If three balls are drawn from it randomly, then find the probability of getting at most one black ball.
(a) 17/42
(b) 17/22
(c) 19/42
(d) 11/52
(e) 27/41

Directions (6-10): Solve the given quadratic equations and mark the correct option based on your answer—

Q6.

I. $2x^2 + 3x - 27 = 0$

II. $3y^2 - 5y - 42 = 0$

(a) x > y
(b) x ≥ y
(c) x < y
(d) x ≤ y
(e) x = y or no relation can be established between x and y.

Q7.

I. $x^2 - 2x - 15 = 0$

II. $y^2 - 4y - 12 = 0$

(a) x > y
(b) x ≥ y
(c) x < y
(d) x ≤ y
(e) x = y or no relation can be established between x and y.

Q8.

I. $x^2 - 20x + 96 = 0$

II. $y^2 - 10y + 24 = 0$

(a) x > y
(b) x ≥ y
(c) x < y
(d) x ≤ y
(e) x = y or no relation can be established between x and y.

Q9.

I. $6x^2 + 13x + 5 = 0$

II. $3y^2 + 11y + 10 = 0$

(a) x > y
(b) x ≥ y
(c) x < y
(d) x ≤ y
(e) x = y or no relation can be established between x and y.

Q10.

I. $2x^2 + 14x + 24 = 0$

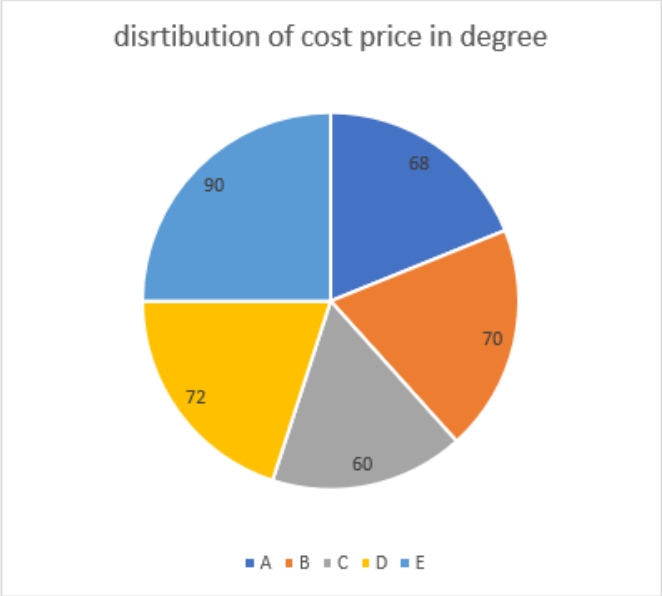
II. $3y^2 + 12y + 12 = 0$

(a) x > y
(b) x ≥ y
(c) x < y
(d) x ≤ y
(e) x = y or no relation can be established between x and y.

Directions (11-15): Pie chart given below gives information about distribution of cost price of those five articles in degree. Total cost price of five article is Rs. 43200. Read the data carefully and answer the questions.

Note: (i) Profit percentage on article A, D & E is 10%, 12% and 20% respectively.

(ii) Loss percentage on article B & C is 15% and 22% respectively.



Q11. What is the difference between cost price of article A and selling price of article D?
(a) Rs. 480
(b) Rs.1516.8
(c) Rs.700.8
(d) Rs.520
(e) Rs.480.8

Q12. Find the ratio of selling price of article E to total cost price of article B and C together?
(a) 108:119
(b) 54:65
(c) 11:13
(d) 65:79
(e) None of these.

Q13. Difference between cost price of article B and article D is what percent of cost price of article C?
(a) 3.66%
(b) 6.67%
(c) 14.28%
(d) 4%
(e) 3.33%

Q14. What is the difference between total profit and total loss incurred on all article?
(a) Rs.1178.8
(b) Rs.1268.8
(c) Rs.1278.8
(d) Rs.1168.8
(e) Rs.1378.8

Q15. If another article F is sold at selling price of article C and 20% profit is earned on selling article F, then find cost price of article F is how much percent less than cost price of article C?
(a) 45%
(b) 50%
(c) 35%
(d) 55%
(e) 27%

Q16. The ratio of time taken by pipe A to that pipe B to fill a tank alone in 4 : 5. When both pipes together open for 16 hours in the same tank, then 90% of the tank filled. Find difference between their individual time to fill the same tank?
(a) 9 hours
(b) 8 hours
(c) 5 hours
(d) 6 hours
(e) 4 hours

Q17. The ratio of present age of P to Q is 3: 5 and the present age of R is 40% less than that of Q. If the difference between the present age of P and Q is 28 years, then find the average of present age of Q & R?
(a) 52 years
(b) 48 years
(c) 56 years
(d) 64 years
(e) 58 years

Q18. The ratio of length to breadth of a rectangle is 4 : 3 and the area of the rectangle is 432 cm^2. Find the area of a circle, which radius is 2 cm less than diagonal of the rectangle (in cm^2)?
(a) 2428
(b) 2488
(c)2484
(d)2432
(e) 2464

Q19. Arun invested an amount on simple interest and after ten years it becomes two times itself. If Arun invested same amount at the same rate of interest on compound interest annually and he gets Rs. 19360 as amount after two years, then find amount invested by Arun (in Rs.)?
(a) 17600
(b) 14400
(c) 18600
(d) 16000
(e) 12000

Q20. Two trains A and B are running in opposite direction to each other. The length of train A is 280 meters and their speeds are 36 kmph and 54 kmph respectively. If train A crosses train B in 18 seconds, then what is the length of train B?
(a) 155 meters
(b) 110 meters
(c) 170 meters
(d) 205 meters
(e) 185 meters

Directions (21-25): The following questions are accompanied by two statements (1) and (2). You have to determine which statements(s) is/are sufficient/necessary to answer the questions.

Q21. Find the speed of the train?
Statement 1: the train can cross a platform of length 540 metres in 90 seconds.
Statement 2: the train can cross a man running in the direction of the train with the speed of 6 km/hr in 43.2 seconds.
(a) Statement (1) alone is sufficient to answer the question but statement (2) alone is not sufficient to answer the question.
(b) Statement (2) alone is sufficient to answer the question but statement (I) alone is not sufficient to answer the question.
(c) Both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.
(d) Statements (1) and (2) taken together are not sufficient to answer the question.
(e) Either statement (1) or statement (2) by itself is sufficient to answer the question.

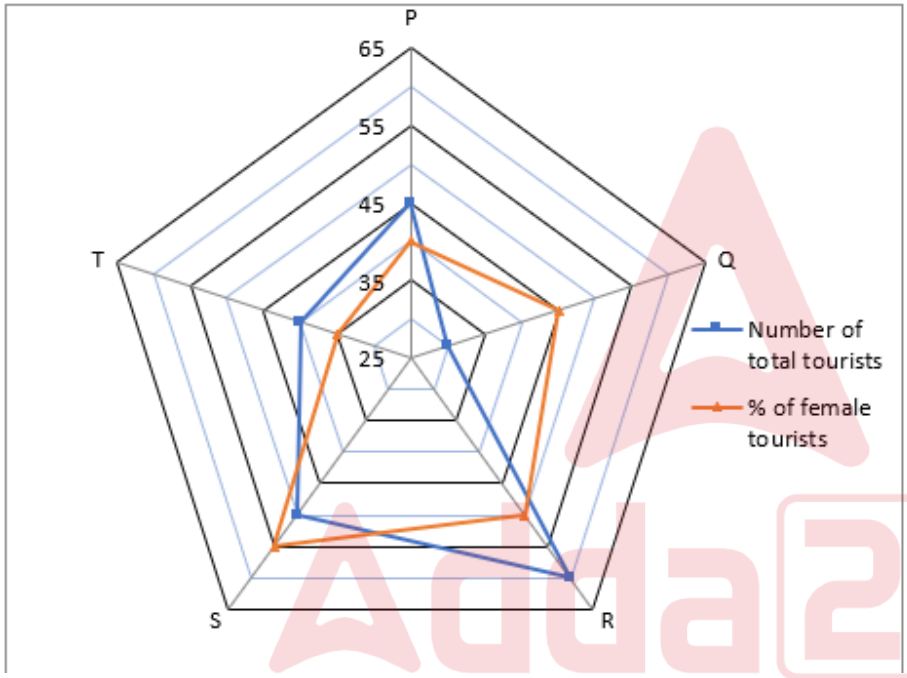
Q22. Find 40% of the fraction?
Statement 1: Numerator of the fraction is 40 % less than its denominator.
Statement 2: Difference between denominator and numerator of the fraction is 4 and denominator of fraction is greater than its numerator.
(a) Statement (1) alone is sufficient to answer the question but statement (2) alone is not sufficient to answer the question.
(b) Statement (2) alone is sufficient to answer the question but statement (I) alone is not sufficient to answer the question.
(c) Both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.
(d) Statements (1) and (2) taken together are not sufficient to answer the question.
(e) Either statement (1) or statement (2) by itself is sufficient to answer the question

Q23. What is the perimeter of a semi-circle?
Statement 1: The radius of the semicircle is equal to the half the side of a square
Statement 2: the area of the square is 3136 sq cm
(a) Statement (1) alone is sufficient to answer the question but statement (2) alone is not sufficient to answer the question.
(b) Statement (2) alone is sufficient to answer the question but statement (I) alone is not sufficient to answer the question.
(c) Both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.
(d) Statements (1) and (2) taken together are not sufficient to answer the question.
(e) Either statement (1) or statement (2) by itself is sufficient to answer the question.

Q24. p men can complete a piece of work in 60 days. Find the value of p
Statement 1: 30 men can complete the same work in 80 days.
Statement 2:(p+8) men can complete the work in 10 days less than the number of days required by p men
(a) Statement (1) alone is sufficient to answer the question but statement (2) alone is not sufficient to answer the question.
(b) Statement (2) alone is sufficient to answer the question but statement (I) alone is not sufficient to answer the question.
(c) Both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.
(d) Statements (1) and (2) taken together are not sufficient to answer the question.
(e) Either statement (1) or statement (2) by itself is sufficient to answer the question.

Q25. Find respective ratio of time taken by the boat to travel 96 km upstream and 90 km in still water?
Statement 1: Speed of the boat in still water is 12 km/hr more than the speed of the stream.
Statement 2: The boat can go 90 km downstream and 60 km upstream in 10 hr.
(a) Statement (1) alone is sufficient to answer the question but statement (2) alone is not sufficient to answer the question.
(b) Statement (2) alone is sufficient to answer the question but statement (I) alone is not sufficient to answer the question.
(c) Both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.
(d) Statements (1) and (2) taken together are not sufficient to answer the question.
(e) Either statement (1) or statement (2) by itself is sufficient to answer the question.

Directions (26-30): Given radar graph shows total number of tourists (in hundred) visited at five different place and percentage of female tourists out of total tourists visited in these five places. Study the graph given below carefully and answer the following questions.



Q26. Number of male tourists visited at P & R together is what percent more or less than total tourists visited at Q?
(a) 80%
(b) 70%
(c) 60%
(d) 90%
(e) 50%

Q27. Find ratio of female tourists visited at P & Q together to male tourists visited at Q and S together.
(a) 4 : 5
(b) 21 : 26
(c) 3 : 8
(d) 14 : 17
(e) 11 : 16

Q28. Total male tourists visited at T is how much more or less than the average of female tourists visited at P, Q and R?
(a) 300
(b) 450
(c) 400
(d) 550
(e) 500

Q29. If male tourists visited at 'X' is 30% more than male tourists visited at P and female tourists visited at 'X' is 200% of female tourists visited at T, then find the difference between total male and female tourists visited at 'X'.
(a) 710
(b) 610
(c) 510
(d) 730
(e) 810

Q30. Male tourists visited at Q is what percent of total female tourists visited at P and R together?
(a) 38.375%
(b) 36.375%
(c) 34.375%
(d) 32.375%
(e) None of the above

Q31. If 'p' number of persons can do a work in (2p-8) days while (p-8) number of person can do that work in (2p+12) days then find in how many days $\frac{3}{2}$p number of person will do one-third of that work?
(a) 12 days
(b) $8\frac{8}{9}$ days
(c) $6\frac{2}{3}$ days
(d) 8 days
(e) 9 days

Q32. The average of total amount invested by A and B is Rs 2700 and investment time of A is $\frac{3}{5}^{th}$ of that of B. If B's profit is Rs 825 out of Rs 1140 then find the difference of their investment amount?
(a) Rs. 1000
(b) Rs. 900
(c) Rs. 1500
(d) Rs. 1200
(e) Rs. 1800

Q33. A shopkeeper sold an article at a profit of $\frac{2}{15}$th of its selling price to Veer. Veer further sold it at 2.5% loss for Rs. 585. Find the difference of original cost price of that article and selling price of article of Veer.
(a) Rs 52
(b) Rs 55
(c) Rs 65
(d) Rs 69
(e) Rs 75

Q34. Difference of the interest received when a sum is invested at 15% p.a. at SI for two years and the interest received when that sum is invested at 20% p.a. for one year compounded half yearly is Rs 432, find the sum?
(a) Rs. 5400
(b) Rs. 5000
(c) Rs. 4500
(d) Rs. 4000
(e) Rs. 4800

Directions (35-39): Read the following information carefully and answer the questions given below.
There are 1200 students in a college and they like three footballers (i.e., Ronaldo, Messi & Harry Kane). Boys who like Ronaldo is 60% of girls who like Ronaldo. Boys who like Messi is 40 more than girl who like Messi. Girls who like Messi is same as girls who like Ronaldo.
Boys who like Harry Kane is 140 more than girls who like Messi and ratio of boys who like Ronaldo to girls who like Harry Kane is 3 : 7.

Q35. Find the ratio of boys who like Harry Kane to girls who like Ronaldo.
(a) None of these
(b) 16:31
(c) 31:16
(d) 31:17
(e) 14: 31

Q36. Girls who like Messi is what % total no. of students who like Messi?
(a) $22\frac{14}{19}\%$
(b) $44\frac{13}{19}\%$
(c) $44\frac{14}{23}\%$
(d) $42\frac{14}{19}\%$
(e) $44\frac{14}{19}\%$

Q37. Find the average no. of girls who like all the three footballers?
(a) $115\frac{4}{7}$
(b) $102\frac{2}{3}$
(c) $192\frac{4}{7}$
(d) $192\frac{2}{3}$
(e) $189\frac{2}{3}$

Q38. Find the difference between no. of boys who like Ronaldo and Harry Kane together to no. of girls who like Messi.
(a) 242
(b) 188
(c) 328
(d) 448
(e) 140

Q39. Total no. of students who like Kane Harry is what % more/less than total no. of student who like Ronaldo.
(a) 107%
(b) 101%
(c) 111%
(d) 116%
(e) 121%

Directions (40- 44): What approximate value should come in the place of question (?) mark in following questions.

Q40. $125.07\%\text{ of }419.93 + 50.99 = (80\%\text{ of }?)^2$
(a) 30
(b) 45
(c) 20
(d) 25
(e) 50

Q41. $?^3 \times 12.03 + 24.01\%\text{ of }450 = (39.99)^2 + \sqrt[3]{511.93}$
(a) 3
(b) 4
(c) 5
(d) 6
(e) 8

Q42. $\frac{624.01}{?} + (12.98)^2 = 51.98\%\text{ of }400.01$
(a) 4
(b) 12
(c) 8
(d) 32
(e) 16

Q43. $? \times (20.01\%\text{ of }580.01 + \sqrt{196.01}) = (8.99)^3 + 17.01 \times 3.03$
(a) 6
(b) 4
(c) 2
(d) 8
(e) 12

Q44. $1248.01 + ?^3 = 96.01\%\text{ of }1525.01$
(a) 6
(b) 5
(c) 4
(d) 10
(e) 12

Directions (45-50): Read the following table carefully and answer the questions given below. Following table shows total number of people visit four different momentum places (Red fort, Charminar, Taj mahal, Hawa mahal), Percentage distribution number of children and ratio of male to female visit to that place.

Monument place	Total no. of people	Percentage of number of children	Ratio of Male to Female
Red fort	400	10%	5:4
Charminar	280	25%	3:4
Taj mahal	450	–	11:7
Hawa mahal	560	–	9:5

Note: (i) Total no. of children visits to Taj mahal and Hawa mahal together = 230
(ii) No. of children visit to Hawa mahal is 50 more than no. of children visits to Taj mahal.

Q45. No. of children visit to Hawa mahal is what % more/less than no. of male visit to Red Fort?
(a) 10%
(b) 20%
(c) 44%
(d) 30%
(e) 65%

Q46. No. of female visit to Charminar is how much more than no. of male visit to Hawa mahal.
(a) 125
(b) 150
(c) 175
(d) 225
(e) 200

Q47. Find the ratio of no. of children visit to Taj mahal to no. of female visit to Red Fort.
(a) 11:16
(b) 9:17
(c)10 :17
(d) 4:11
(e) 9:16

Q48. Find the average no. of children visit to all the four places.
(a) 85
(b) 57
(c) 104
(d) 46
(e) 62

Q49. Ticket price for every male, female and children who visit to Charminar is Rs.40, Rs.30 & Rs.15 respectively. Find the total amount.
(a) Rs.5150
(b) Rs.8250
(c) Rs.7850
(d) Rs.5650
(e) Rs.4450

Q50. Find total no. of female visit in all the four places.
(a) 560
(b) 285
(c) 410
(d) 570
(e) 485

Solutions

S1. Ans.(b)
Sol.

Let the profit earned on second cycle be x%
Using allegation method,

12% x%

15%

(x-15)% 3%

1 : 1----------(ratio of cost price)

x =18%
ATQ
(18 -12)%= Rs 360
1% = Rs. 60
So, cost price of one cycle = 100%= Rs 6000

S2. Ans.(b)
Sol.

Let efficiency of P and Q be p & q respectively.
ATQ
$20p + 36q = 48q + 12p$
$8p = 12q$
$\frac{p}{q} = \frac{3}{2}$
Let p & q be 3x & 2x respectively.
So, total work = $20 \times 3x + 36 \times 2x = 132x$ unit
Time taken by Q to complete the work while working alone = $\frac{132x}{2x} = 66\ days$

S3. Ans.(c)
Sol.

Let investment of Q = 4P Rs.
So, investment of P = $4P \times \frac{3}{4} = 3P$ Rs.
And also, P and Q invested for x months and y months respectively
ATQ –
$\frac{3P \times x}{4P \times y} = \frac{2700}{5100-2700}$
$\frac{3x}{4y} = \frac{9}{8}$
$\frac{x}{y} = \frac{3}{2}$
Required percentage = $\frac{2}{3} \times 100 = \frac{200}{3}\%$

S4. Ans.(b)

Sol.

Let efficiency of a man and a woman be M & W respectively.

$14M \times 8 = 10W \times 16$

$7M = 10W$

$\frac{M}{W} = \frac{10}{7}$ .....(i)

Total work = $14 \times 8 = 112\ units$

ATQ.

7 men and 5 women = 10.5 men ..... using (i)

7 men & 5 women started the work & worked for only 8 days

$10.5 \times 8 = 84\ units$

Remaining work done by x no. of men in 4 days

$x = \frac{112 - 84}{4} = \frac{28}{4} = 7$

S5. Ans.(a)

Sol.

Required probabilty = $\frac{5c_1 \times 4c_2 + 4c_3}{9c_3} = \frac{17}{42}$

S6. Ans.(e)

Sol.

I. $2x^2 + 3x - 27 = 0$

$2x^2 + 9x - 6x - 27 = 0$

$x(2x + 9) - 3(2x + 9) = 0$

$(2x + 9)(x - 3) = 0$

$x = \frac{-9}{2}, 3$

II. $3y^2 - 5y - 42 = 0$

$3y^2 - 14y + 9y - 42 = 0$

$y(3y - 14) + 3(3y - 14) = 0$

$(y + 3)(3y - 14) = 0$

$y = -3, \frac{14}{3}$

No relation can be established between x & y

S7. Ans.(e)

Sol.

I. $x^2 - 5x + 3x - 15 = 0$

$(x - 5)(x + 3) = 0$

$x = -3, 5$

II. $y^2 - 6y + 2y - 12 = 0$

$y(y - 6) + 2(y - 6) = 0$

$(y + 2)(y - 6) = 0$

$y = -2, 6$

No relation can be established between x and y.

S8. Ans.(a)
Sol.

I. $x^2 - 12x - 8x + 96 = 0$
$(x - 12)(x - 8) = 0$
$x = 12, 8$

II. $y^2 - 4y - 6y + 24 = 0$
$(y - 4)(y - 6) = 0$
$y = 4, 6$
$\Rightarrow x > y$

S9. Ans.(b)
Sol.

I. $6x^2 + 13x + 5 = 0$
$6x^2 + 3x + 10x + 5 = 0$
$3x(2x + 1) + 5(2x + 1) = 0$
$x = -\frac{5}{3}, -\frac{1}{2}$

II. $3y^2 + 11y + 10 = 0$
$3y^2 + 11y + 10 = 0$
$3y^2 + 6y + 5y + 10 = 0$
$3y(y + 2) + 5(y + 2) = 0$
$y = -2, -\frac{5}{3}$
$x \geq y$

S10. Ans.(c)
Sol.

I. $2x^2 + 8x + 6x + 24 = 0$
$2x(x + 4) + 6(x + 4) = 0$
$(2x + 6)(x + 4) = 0$
$x = -3, -4$

II. $3y^2 + 6y + 6y + 12 = 0$
$3y(y + 2) + 6(y + 2) = 0$
$(y + 2)(3y + 6) = 0$
$y = -2, -2$
$x < y$

S11. Ans.(b)
Sol.

Cost price of article A $= \frac{43200}{360} \times 68 = Rs.8160$
Selling price of article D $= \frac{43200}{360} \times 72 \times \frac{112}{100} = Rs.9676.8$
Required difference $= 9676.8 - 8160 = Rs.1516.8$

S12. Ans.(b)
Sol.

Selling price of article E = $\frac{43200}{360} \times 90 \times \frac{120}{100} = Rs.12960$

Cost price of article B and C together = $\frac{43200}{360} \times (70 + 60) = Rs.15600$

Required ratio = $\frac{12960}{15600} = 54:65$

S13. Ans.(e)
Sol.

Difference between Cost price of article B and D = $\frac{43200}{360} \times (72 - 70) = Rs.240$

Cost price of article C = $\frac{43200}{360} \times 60 = Rs.7200$

Required percentage = $\frac{240}{7200} \times 100 = 3.33\%$

S14. Ans.(d)
Sol.

Profit incurred on article A = $\frac{43200}{360} \times 68 \times \frac{10}{100} = Rs.816$

Loss incurred on article B = $\frac{43200}{360} \times 70 \times \frac{15}{100} = Rs.1260$

Loss incurred on article C = $\frac{43200}{360} \times 60 \times \frac{22}{100} = Rs.1584$

Profit incurred on article D = $\frac{43200}{360} \times 72 \times \frac{12}{100} = Rs.1036.8$

Profit incurred on article E = $\frac{43200}{360} \times 90 \times \frac{20}{100} = Rs.2160$

Required answer = $816 - 1260 - 1584 + 1036.8 + 2160 = Rs.1168.8$

S15. Ans.(c)
Sol.

Selling price of article F = $\frac{43200}{360} \times 60 \times \frac{78}{100} = Rs.5616$

Cost price of article F = $\frac{5616}{120} \times 100 = Rs.4680$

Cost price of article C= $\frac{43200}{360} \times 60 = Rs.7200$

Required percentage = $\frac{7200-4680}{7200} \times 100 = 35\%$

S16. Ans.(b)
Sol.

Let time taken by pipe B alone to fill the tank be $5t$ hours

Then, time taken by pipe A alone to fill the same tank = $5t \times \frac{4}{5} = 4t$ hours

ATQ

$$\frac{16}{4t} + \frac{16}{5t} = \frac{90}{100}$$

$$\frac{80 + 64}{20t} = \frac{9}{10}$$

$t = 8$

Required difference= 5t – 4t = t = 8 hours

S17. Ans.(c)

Sol.

Let the present age of Q be'5x'

And present age of P = $5x \times \frac{3}{5} = 3x$

And present age of R = $5x \times \frac{(100-40)}{100} = 3x$

ATQ.

$5x - 3x = 28$

$2x = 28$

$x = 14$

Required average = $\frac{5\times14+3\times14}{2}$ = 56 years

S18. Ans.(e)

Sol.

Let length of the rectangle be 4x cm

Then breadth of that rectangle= $4x \times \frac{3}{4}$ =3x cm

ATQ

$4x \times 3x = 432$

$x = 6$

Length of rectangle =24 cm and breadth of rectangle = 18 cm

Diagonal of rectangle =$\sqrt{(576 + 324)} = 30\ cm$

Radius of circle = 30 – 2 = 28 cm

Required area = $\frac{22}{7} \times 28 \times 28 = 2464\ cm^2$

S19. Ans.(d)

Sol.

Let Arun invested = Rs. P

And, rate of interest be R% p.a.

So, interest got by Arun after 10 years = 2P– P = P Rs.

ATQ –

$\frac{P\times10\times R}{100}$ = P

R = 10%

Required amount = $P \times \left(1 + \frac{10}{100}\right)^2 = 19360$

P = 16000 Rs.

S20. Ans.(c)

Sol.

Let the length of train B = L meter

$$\frac{L + 280}{(36 + 54) \times \frac{5}{18}} = 18$$

$(L + 280) = 25 \times 18$

$L = 450 - 280 = 170\ meter$

S21. Ans.(c)
Sol.

Let length of train be L meters and speed of train be S km/hr

From statement 1, $L + 540 = S \times \frac{5}{18} \times 90$

$L = 25S - 540$ ..... (1)

From statement 2, $L = (S-6) \times \frac{5}{18} \times 43.2$

$L = (S-6) \times 12$ ..... (2)

From (1) and (2),we get

$25S - 540 = (S-6) \times 12$

$25S - 540 = 12S - 72$

$25S - 12S = 540 - 72$

$13S = 468$

$S = 36$ km/hr

So, both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.

S22. Ans.(a)
Sol.

From statement 1: Let denominator of fraction be p

$\text{Fraction} = \frac{(\frac{p \times 60}{100})}{p}$

$\text{Fraction} = \frac{6}{10} = \frac{3}{5}$

$\text{Reqd value} = \frac{40}{100} \times \frac{6}{10} = \frac{24}{100} = \frac{6}{25}$

From statement 2: $\text{Fraction} = \frac{p-4}{p}$

Required value can't be determined

Hence, statement **(1)** alone is sufficient to answer the question but statement **(2)** alone is not sufficient to answer the question.

S23. Ans.(c)
Sol.

Perimeter of a semi-circle= $\pi r + 2r$

From statement 1 and statement 2: Side of the square= $\sqrt{3136} = 56$ cm

$\text{Radius} = \frac{56}{2} = 28$ cm

Perimeter of the semicircle= $(\frac{22}{7} \times 28 + 2 \times 28)$cm

$= 88 + 56 = 144$ cm

Hence, both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.

S24. Ans.(e)
Sol.

From statement 1: Required number of men(p)= $\frac{30 \times 80}{60} = 40$

From statement 2: According to the question

$p \times 60 = (p+8) \times 50$

$60p = 50p + 400$

$10p = 400$

$P = 40$

Hence, either statement **(1)** or statement **(2)** by itself is sufficient to answer the question.

S25. Ans.(c)
Sol.

Let speed of boat in still water is x km/hr and speed of stream= y km/hr

From statement 1: x= y+12

And from statement 2: $\frac{90}{x+y}+\frac{90}{x-y}=10$

From (1) and (2), we get

$\frac{90}{(y+12+y)}+\frac{60}{y+12-y}=10$

$\frac{90}{2y+12}+\frac{60}{12}=10$

$\frac{90}{2y+12}=5$

$y=\frac{6}{2}=3$ km/hr

x =12 +3 =15 km/hr

Required ratio$=\frac{96}{15-3}:\frac{90}{15}$

$=\frac{96}{12}:\frac{90}{15}$

= 8:6

=4:3

So, both the statements taken together are necessary to answer the question, but neither of the statements alone is sufficient to answer the question.

S26. Ans.(d)
Sol.

Number of male tourists visited at P & R together = $4500 \times \frac{60}{100} + 6000 \times \frac{50}{100}$

= 2700 + 3000

= 5700

Required % = $\frac{5700-3000}{3000} \times 100 = 90\%$

S27. Ans.(b)
Sol.

Female tourists visited at P & Q together = $4500 \times \frac{40}{100} + 3000 \times \frac{45}{100} = 1800 + 1350 = 3150$

Male tourists visited at Q & S together = $3000 \times \frac{55}{100} + 5000 \times \frac{45}{100} = 1650 + 2250 = 3900$

Required ratio = $\frac{3150}{3900} = \frac{21}{26} = 21 : 26$

S28. Ans.(d)
Sol.

Total male tourists visited at T = $4000 \times \frac{65}{100} = 2600$

Total female tourists visited at P, Q & R together = $4500 \times \frac{40}{100} + 3000 \times \frac{45}{100} + 6000 \times \frac{50}{100}$

= 1800 + 1350 + 3000 = 6150

Required difference = $2600 - \frac{6150}{3} = 2600 - 2050 = 550$

S29. Ans.(a)
Sol.

Male tourists visited at 'X' $= 4500 \times \frac{60}{100} \times \frac{130}{100} = 3510$

Female tourists visited at 'X' $= 4000 \times \frac{35}{100} \times \frac{200}{100} = 2800$

Required difference = 3510 – 2800 = 710

S30. Ans.(c)
Sol.

Male tourists visited at Q $= 3000 \times \frac{55}{100} = 1650$

Total female tourists visited at P & R together $= 4500 \times \frac{40}{100} + 6000 \times \frac{50}{100}$

= 1800 + 3000 = 4800

Required percentage $= \frac{1650}{4800} \times 100 = 34.375\%$

S31. Ans.(b)
Sol.

ATQ,

$p \times (2p - 8) = (2p + 12) \times (p - 8)$

$p = 24$

Total work $= 24 \times 40 = 960$

Required time $= \frac{960 \times \frac{1}{3}}{36} = 8\frac{8}{9}$ days

S32. Ans.(d)
Sol.

Let the amount invested by A be Rs x

Then amount invested by B=Rs (5400-x)

Ratio of profit

A	:	B
$x \times 3$	:	$(5400 - x) \times 5$
$3x$	:	$(27{,}000 - 5x)$

ATQ

$\frac{3x}{27000-2x} = \frac{315}{1140}$

$x = Rs\ 2100$

B's investment=Rs 3300

Required difference=Rs 1200

S33. Ans.(c)
Sol.

Let the selling price of that article be Rs 15x

Profit=Rs 2x

Cost price=Rs 13x

ATQ

$15x \times \frac{2.5}{100} = 15x - 585$

$x = 40$

Required difference=585-520=Rs 65

S34. Ans.(e)

Sol.

Let the amount be Rs x

ATQ

$x \times \frac{30}{100} - x \times \frac{21}{100} = 432$

$x = Rs\ 4800$

S35. Ans.(d)

Sol.

Total student in a college = 1200

Let no. of girls who like Messi be y

No. of boys who like Messi = y+40

Girls who like Messi = girls who like Ronaldo = y

Boys who like Ronaldo = $y \times \frac{60}{100} = 0.6y$

Boys who like Harry Kane = y+140

Girls who like Harry Kane = $0.6y \times \frac{7}{3} = 1.4y$

$y + y + 40 + y + 0.6y + y + 140 + 1.4y = 1200$

$6y = 1200 - 180$

$y = 170$

Footballers	Boys	Girls
Ronaldo	$0.6 \times 170 = 102$	170
Messi	$170 + 40 = 210$	170
Kane Harry	$170 + 140 = 310$	$1.4 \times 170 = 238$
Total	622	578

Req. ratio = $310 : 170 = 31 : 17$

S36. Ans.(e)

Sol.

Total student in a college = 1200

Let no. of girls who like Messi be y

No. of boys who like Messi = y+40

Girls who like Messi = girls who like Ronaldo = y

Boys who like Ronaldo = $y \times \frac{60}{100} = 0.6y$

Boys who like Harry Kane = y+140

Girls who like Harry Kane = $0.6y \times \frac{7}{3} = 1.4y$

$y + y + 40 + y + 0.6y + y + 140 + 1.4y = 1200$

$6y = 1200 - 180$

$y = 170$

Footballers	Boys	Girls
Ronaldo	$0.6 \times 170 = 102$	170
Messi	$170 + 40 = 210$	170
Kane Harry	$170 + 140 = 310$	$1.4 \times 170 = 238$
Total	622	578

Req. % = $\frac{170}{210+170} \times 100 = 44\frac{14}{19}\%$

S37. Ans.(d)

Sol.

Total student in a college = 1200

Let no. of girls who like Messi be y

No. of boys who like Messi = y+40

Girls who like Messi = girls who like Ronaldo = y

Boys who like Ronaldo = $y \times \frac{60}{100} = 0.6y$

Boys who like Harry Kane = y+140

Girls who like Harry Kane = $0.6y \times \frac{7}{3} = 1.4y$

$y + y + 40 + y + 0.6y + y + 140 + 1.4y = 1200$

$6y = 1200 - 180$

$y = 170$

Footballers	Boys	Girls
Ronaldo	$0.6 \times 170 = 102$	170
Messi	$170 + 40 = 210$	170
Kane Harry	$170 + 140 = 310$	$1.4 \times 170 = 238$
Total	622	578

Req. average = $\frac{578}{3} = 192\frac{2}{3}$

S38. Ans.(a)

Sol.

Total student in a college = 1200

Let no. of girls who like Messi be y

No. of boys who like Messi = y+40

Girls who like Messi = girls who like Ronaldo = y

Boys who like Ronaldo = $y \times \frac{60}{100} = 0.6y$

Boys who like Harry Kane = y+140

Girls who like Harry Kane = $0.6y \times \frac{7}{3} = 1.4y$

$y + y + 40 + y + 0.6y + y + 140 + 1.4y = 1200$

$6y = 1200 - 180$

$y = 170$

Footballers	Boys	Girls
Ronaldo	$0.6 \times 170 = 102$	170
Messi	$170 + 40 = 210$	170
Kane Harry	$170 + 140 = 310$	$1.4 \times 170 = 238$
Total	622	578

Req. difference = $(102 + 310) - 170 = 242$

S39. Ans.(b)

Sol.

Total student in a college = 1200

Let no. of girls who like Messi be y

No. of boys who like Messi = y+40

Girls who like Messi = girls who like Ronaldo = y

Boys who like Ronaldo = $y \times \frac{60}{100} = 0.6y$

Boys who like Harry Kane = y+140

Girls who like Harry Kane = $0.6y \times \frac{7}{3} = 1.4y$

$y + y + 40 + y + 0.6y + y + 140 + 1.4y = 1200$

$6y = 1200 - 180$

$y = 170$

Footballers	Boys	Girls
Ronaldo	$0.6 \times 170 = 102$	170
Messi	$170 + 40 = 210$	170
Kane Harry	$170 + 140 = 310$	$1.4 \times 170 = 238$
Total	622	578

Req.% = $\frac{548-272}{272} \times 100 = 101.4\% \approx 101\%$

S40. Ans.(a)

Sol.

$\frac{125}{100} \times 420 + 51 = \left(\frac{80}{100} \times ?\right)^2$

$525 + 51 = \left(\frac{4}{5} \times ?\right)^2$

$? = 24 \times \frac{5}{4}$

$? = 30$

S41. Ans.(c)

Sol.

$?^3 \times 12 + \frac{24}{100} \times 450 = (40)^2 + \sqrt[3]{512}$

$?^3 \times 12 = 1600 + 8 - 108$

$?^3 \times 12 = 1500$

$?^3 = 125$

$? = 5$

S42. Ans.(e)

Sol.

$\frac{624}{?} + 169 = \frac{52}{100} \times 400$

$\frac{624}{?} = 208 - 169$

$? = \frac{624}{39}$

$? = 16$

S43.Ans.(a)
Sol.

$? \times \left(\frac{20}{100} \times 580 + 14\right) = 729 + 51$
$? \times 130 = 780$
$? = 6$

S44. Ans.(a)
Sol.

$1248 + ?^3 = \frac{96}{100} \times 1525$
$1248 + ?^3 = 1464$
$?^3 = 216$
$? = 6$

S45. Ans.(d)
Sol.

Total no. of children visits to Taj mahal + Hawa mahal together = 230 .... (i)
No. of children visit to Hawa mahal – no. of childern visit to Taj mahal = 50 ..... (ii)
From (i) & (ii)
No. of children who visit to Hawa mahal = 140
No. of children who visit to Taj mahal = 90

No. of children visit to Hawa mahal = 140
No. of male visit to Red Fort = $400 \times \frac{90}{100} \times \frac{5}{9} = 200$
Req. % = $\frac{200-140}{200} \times 100 = 30\%$

S46. Ans.(b)
Sol.

Total no. of children visits to Taj mahal + Hawa mahal together = 230 .... (i)
No. of children visit to Hawa mahal – no. of childern visit to Taj mahal = 50 ..... (ii)
From (i) & (ii)
No. of children who visit to Hawa mahal = 140
No. of children who visit to Taj mahal = 90

No. of female visit to Charminar = $280 \times \frac{75}{100} \times \frac{4}{7} = 120$
No. of male visit to Hawa mahal = $(560 - 140) \times \frac{9}{14} = 270$
Req. difference = $270 - 120 = 150$

S47. Ans.(e)
Sol.

Total no. of children visits to Taj mahal + Hawa mahal together = 230 .... (i)
No. of children visit to Hawa mahal – no. of childern visit to Taj mahal = 50 ..... (ii)
From (i) & (ii)
No. of children who visit to Hawa mahal = 140
No. of children who visit to Taj mahal = 90

No. of Children visit to Taj mahal = 90

No. of female visit to Red fort = $400 \times \frac{90}{100} \times \frac{4}{9} = 160$

Req. ratio = $90 : 160 = 9 : 16$

S48. Ans.(a)

Sol.

Total no. of children visits to Taj mahal + Hawa mahal together = 230 .... (i)

No. of children visit to Hawa mahal – no. of childern visit to Taj mahal = 50 ..... (ii)

From (i) & (ii)

No. of children who visit to Hawa mahal = 140

No. of children who visit to Taj mahal = 90

No. of children's visit to Hawa mahal = 140

No. of children's visit to Taj mahal = 90

No. of children's visit to Red fort = $400 \times \frac{10}{100} = 40$

No. of children's visit to Charminar = $280 \times \frac{25}{100} = 70$

Req. average = $\frac{140+90+40+70}{4} = 85$

S49. Ans.(b)

Sol.

Total no. of children visits to Taj mahal + Hawa mahal together = 230 .... (i)

No. of children visit to Hawa mahal – no. of childern visit to Taj mahal = 50 ..... (ii)

From (i) & (ii)

No. of children who visit to Hawa mahal = 140

No. of children who visit to Taj mahal = 90

No. of children's visit to Charminar = $280 \times \frac{25}{100} = 70$

No. of male visit to Charminar = $280 \times \frac{75}{100} \times \frac{3}{7} = 90$

No. of female visit to Charminar = $280 \times \frac{75}{100} \times \frac{4}{7} = 120$

Req. amount = $70 \times 15 + 90 \times 40 + 120 \times 30 = 1050 + 3600 + 3600 = Rs.8250$

S50. Ans.(d)

Sol.

Total no. of children visits to Taj mahal + Hawa mahal together = 230 .... (i)

No. of children visit to Hawa mahal – no. of childern visit to Taj mahal = 50 ..... (ii)

From (i) & (ii)

No. of children who visit to Hawa mahal = 140

No. of children who visit to Taj mahal = 90

No. of female visit to Charminar = $280 \times \frac{75}{100} \times \frac{4}{7} = 120$

No. of female visit to Red fort = $400 \times \frac{90}{100} \times \frac{4}{9} = 160$

No. of female visit to Hawa mahal = $(560 - 140) \times \frac{5}{14} = 150$

No. of female visit to Taj mahal = $(450 - 90) \times \frac{7}{18} = 140$

Req. sum = $120 + 160 + 150 + 140 = 570$