

Q1 Direction: In the following question two equations are given in variables X and Y. You have to solve these equations and determine the relation between X and Y.

$$2x^2 + 17x + 33 = 0$$

$$x^2 + 12x + 20 = 0$$

- (A) $y \leq x$
- (B) $x \leq y$
- (C) $x > y$
- (D) $y > x$
- (E) $x = y$ or the relation can not be established

Q2 In the questions, two equations I and II are given. You have to solve both the equations to establish the correct relation between x and y and choose the correct option.

I. $2x^2 + 13x + 20 = 0$

II. $y^2 + 11y + 30 = 0$

- (A) $x > y$
- (B) $x < y$
- (C) $x = y$ or the relationship cannot be established
- (D) $x \geq y$
- (E) $x \leq y$

Q3 Find relation between x and y.

(i) $16x^2 + 21x + 5 = 0$

(ii) $14y^2 + 19y + 5 = 0$

- (A) $x > y$
- (B) $x \geq y$
- (C) $x < y$
- (D) $x \leq y$
- (E) $x = y$ or relation can not be established

Q4 Directions : Following question contains two equations as I and II. You have to solve both equations and determine the relationship between them and give answer as,

I) $x^2 - 2x = 168$

II) $y^2 + 28y + 195 = 0$

- (A) $x < y$
- (B) $x \geq y$
- (C) $x = y$ or relationship can't be determined
- (D) $x > y$
- (E) $x \leq y$

Q5 Directions : Following question contains two equations as I and II. You have to solve both equations and determine the relationship between them and give an answer as,

I) $x^2 - 5x - 104 = 0$

II) $y^2 - 27y + 182 = 0$

- (A) $x > y$
- (B) $x \geq y$
- (C) $x = y$ or relationship can't be determined
- (D) $x < y$
- (E) $x \leq y$

Q6 What approximate value will come in place of the question mark (?) in the following question? (You are not expected to calculate the exact value)

$$(? - 45.033) \div 3.92 = 150.022\% \text{ of } 15.999$$

- (A) 168
- (B) 155
- (C) 141
- (D) 198
- (E) 123

Q7 What approximate value will come in place of the question mark (?) in the following question? (You are not expected to calculate the exact value)

$$(18.18\% \times 879.99 + 7.12 \times 6.13 - 22.33) = ? + 11.73$$

- (A) 168
- (B) 177
- (C) 157
- (D) 119
- (E) 193

Q8 What approximate value will come in place of the question mark (?) in the following question? (You are not expected to calculate the exact value)



$$(14.88 \times 23.98) + (12.11\% \text{ of } 624.88) = ? \times 5.23$$

- (A) 70 (B) 80
(C) 87 (D) 66
(E) 75

- Q9** What approximate value will come in place of the question mark (?) in the following question? (You are not expected to calculate the exact value)

$$\sqrt{3025.22} \times \sqrt{144.09} + \sqrt{899.91} \times \sqrt{?}$$

$$= 43.11 \times 25.08$$

- (A) 170 (B) 180
(C) 187 (D) 166
(E) 190

- Q10** What approximate value will come in place of the question mark (?) in the following question? (You are not expected to calculate the exact value)

$$\frac{359.93}{?} = (8.89)^3 - 14.5 \times 39.89 + (1.95)^2$$

$$- 3^4$$

- (A) 8 (B) 3
(C) 5 (D) 2
(E) 9

- Q11** A series 29, 31, 41, 71, 139, 269

If another series __, __, 84, __, m follows the same pattern as the given number series, then find the value of m.

- (A) 182 (B) 132
(C) 172 (D) 194
(E) None of these

- Q12** A series is 8, 7, 10, 21, 68, 315.

If another series 12, __, __, __, __, m; follows the same pattern as the given number series, then find the value of m.

- (A) 878 (B) 600
(C) 546 (D) 795
(E) None of these

- Q13** What will come in place of the question mark (?) in the following series?

62, 64, 70, ?, 94, 112

- (A) 56 (B) 80
(C) 78 (D) 42
(E) 90

- Q14** In each of these questions a number is missing in the series. Find out the missing number.

10, 20, 22, ?, 46, 92, 94

- (A) 44 (B) 24
(C) 40 (D) 26
(E) 48

- Q15** Direction : There are two missing number series given below. Answer the given question based on these two series.

Series-I: 25, 27, 21, 33, 13, M

Series-II: 400, N, 300, 750, 2625, 11812.5

What is the value of $\{(M - 6) + 2N\}$?

- (A) 437 (B) 484
(C) 389 (D) 293
(E) 518

- Q16** In the following question, two statements numbered I and II are given. On solving them, we get quantities I and II, respectively. Solve for both quantities and choose the correct option.

Quantity I: $(P - Q)(Q - R)(R - P)$
+ PQR

Quantity II: $(PQ + QR)(P^2 + Q^2 + R^2)$

Given, $1 \leq P \leq 3$, $4 \leq Q \leq 6$, and $7 \leq R \leq 9$

- (A) Quantity I $\leq$ Quantity II
(B) Quantity I $\geq$ Quantity II
(C) Quantity I $<$ Quantity II
(D) Quantity I $>$ Quantity II
(E) Quantity I = Quantity II

- Q17** Directions: In the following question, two quantities I and II are given. Compare quantity I and quantity II on its basis. (Only quantity is to be considered)



Quantity I: One root is common between equations $x^2 - 2x - 35 = 0$ and $x^2 - Ax + 10 = 0$, then find the value of A.

Quantity II: Ratio of ages of P to Q is 2: 3 and sum of their ages is more than 25 years. Find the age of P.

- (A) Quantity I > Quantity II
 (B) Quantity I < Quantity II
 (C) Quantity I $\geq$ Quantity II
 (D) Quantity I $\leq$ Quantity II
 (E) Quantity I = Quantity II or relation can't be established

Q18 Quantity-I: Draupadi bought a scooter of marked price Rs. 24000 at two successive discounts of 15% and 10%, respectively. If she spends Rs. 2500 on its maintenance, and then sells it at Rs. 26075, then find the percentage profit/loss incurred by Draupadi.

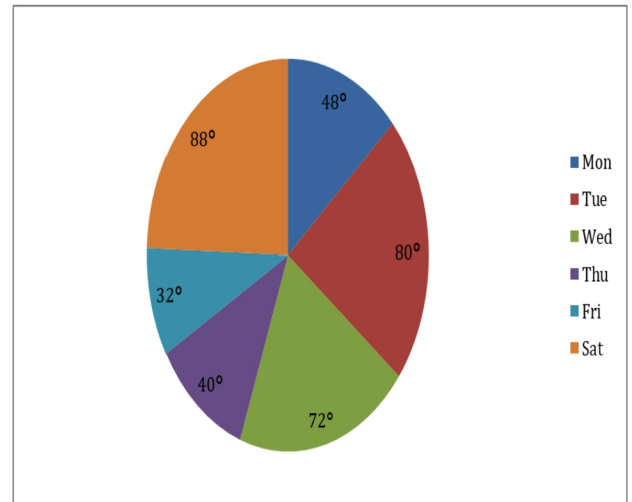
Quantity-II: Shubhadra scored 32% marks in an examination and failed by 15 marks, while Vrushali scored 10% of the total marks in the same exam. The sum of the passing marks and the marks obtained by Vrushali is 120. If Uttara scored 60 marks out of total marks, then marks obtained by Uttara is what percentage of the total marks?

- (A) Quantity-I > Quantity-II
 (B) Quantity-I < Quantity-II
 (C) Quantity-I $\leq$ Quantity-II
 (D) Quantity-I = Quantity-II or No relation
 (E) Quantity-I $\geq$ Quantity-II

Q19 Direction: Study the data carefully and answer the following questions.

Pie chart below shows the degree distribution of difference between maximum and minimum temperatures on six different days From Monday to Saturday of a certain week.

Sum of the pie chart is 90°C.



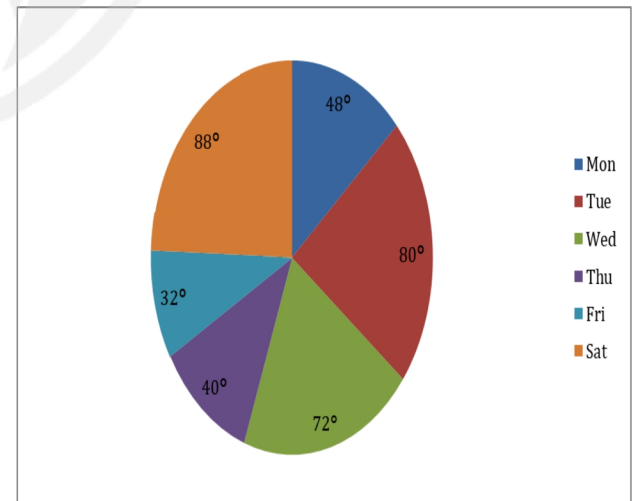
If maximum temperature on Tuesday and Friday is 40°C, then find the ratio of minimum temperature on Tuesday to that on Friday?

- (A) 4: 7
 (B) 2: 3
 (C) 1: 2
 (D) 5: 8
 (E) 4: 9

Q20 Direction: Study the data carefully and answer the following questions.

Pie chart below shows the degree distribution of difference between maximum and minimum temperatures on six different days From Monday to Saturday of a certain week.

Sum of the pie chart is 90°C.



Difference between maximum and minimum temperature on Saturday is what percent more



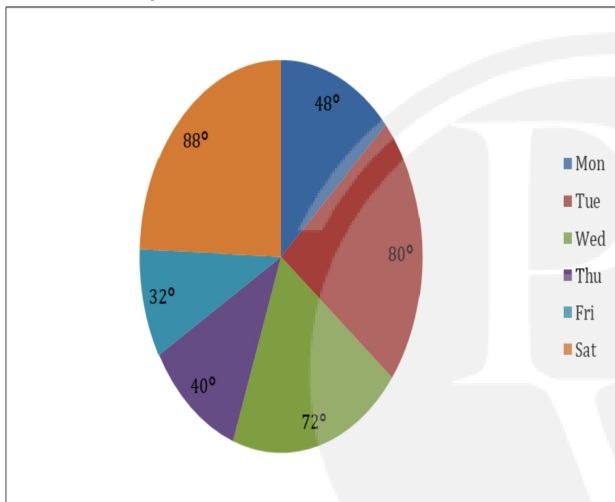
than the difference between maximum and minimum temperature on Wednesday?

- (A) 22.22% (B) 27.5%
(C) 15% (D) 20%
(E) 16.67%

Q21 Direction: Study the data carefully and answer the following questions.

Pie chart below shows the degree distribution of difference between maximum and minimum temperatures on six different days From Monday to Saturday of a certain week.

Sum of the pie chart is 90°C .



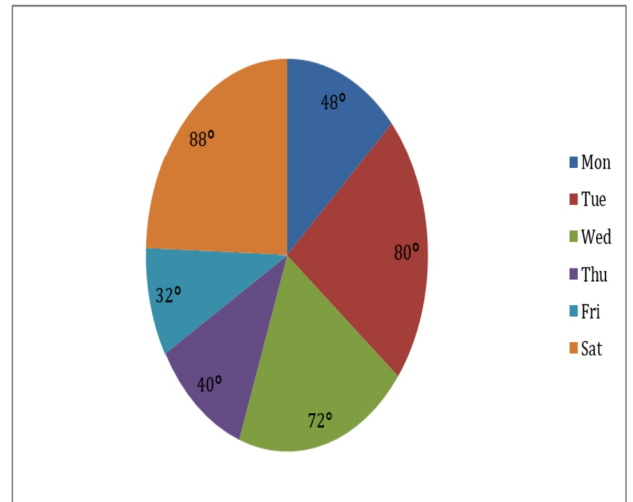
If maximum temperatures on Wednesday and Thursday are 38°C and 30°C , then find that minimum temperature on Wednesday is what percent of that on Thursday?

- (A) 100% (B) 66.67%
(C) 80% (D) 90%
(E) 93.75%

Q22 Direction: Study the data carefully and answer the following questions.

Pie chart below shows the degree distribution of difference between maximum and minimum temperatures on six different days From Monday to Saturday of a certain week.

Sum of the pie chart is 90°C .



If minimum temperature on Thursday is 25°C , ratio of maximum temperature on Thursday to that on Sunday is 7: 8 and the difference between maximum and minimum temperatures on Sunday is 10°C , then find the ratio of minimum temperature on Thursday to that on Sunday?

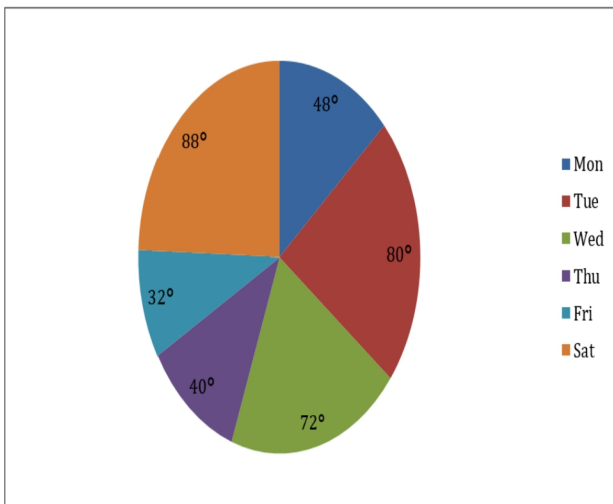
- (A) 25: 31 (B) 5: 6
(C) 5: 7 (D) 25: 32
(E) 5: 8

Q23 Direction: Study the data carefully and answer the following questions.

Pie chart below shows the degree distribution of difference between maximum and minimum temperatures on six different days From Monday to Saturday of a certain week.

Sum of the pie chart is 90°C .





If average maximum temperatures on Monday and Saturday is 40°C , then find the average minimum temperatures on Monday and Saturday?

- (A) 25°C
 (B) 21°C
 (C) 23°C
 (D) Cannot be determined
 (E) 24°C

Directions (24-28) Read the following passage and answer the given questions.

Study the following information carefully and answer the related questions.

The following table represents the data regarding the number of shirts of three different colors sold from different stores.

Stores	Number of Shirt sold		
	Red and Grey	Grey: Blue	Blue
A	----	5: 4	10,400
B	17,080	15: 13	----
C	----	10: 17	----
D	21,300	----	8100
E	18,000	11: 12	----

The number of red shirts sold from store D is 1860 more than the number of grey shirts sold from the same store. The average of the number of grey shirts sold from stores B and D together is 9660. The respective ratio of the number of red and grey shirts sold from store E is 7: 11. The sum of blue shirts sold from store E and C together is 29,000.

Q24 What is the difference between the average of the number of grey Shirts sold from store D and E taken together and the average of the number of blue Shirts sold from store B and C taken together?

- (A) 2030 (B) 1970
 (C) 1150 (D) 2300
 (E) 2290

Q25 What is the respective ratio of the number of grey shirts sold from store B and C taken together and the number of red, grey and blue shirts sold from store E?

- (A) 49: 75 (B) 33: 50
 (C) 13: 25 (D) 20: 23
 (E) 14: 55

Q26 If the price of each color Shirt sold from store B is Rs.120 and price of each color Shirt sold from store D is Rs.80, then what is the difference between earnings of store B and D on selling all Shirt?

- (A) Rs. 496000 (B) Rs. 696000
 (C) Rs. 348000 (D) Rs. 124800
 (E) Rs. 152900

Q27 The average of the number of red shirts sold from stores B and C taken together is 4995 and the sum of red and grey shirts sold from store A is 18000.

What is the average number of red Shirts sold from store A and C taken together?



- (A) 5565 (B) 5485
(C) 5925 (D) 3755
(E) 5125

Q28 Number of red and blue shirts sold from store B are approximately what percent more/less than the number of grey shirts sold from A and E together?

- (A) 30% (B) 34%
(C) 42% (D) 38%
(E) 26%

Q29 An article is marked up at a certain rate above the cost price. Find the marked price of the article (i.e) Rs. K.

Statement I. K is marked at 50% above cost price.

Statement II: The cost price of the article is Rs. P. If the shopkeeper gives a discount of 10%, then he makes a profit of 20%. If he sells the article at the marked price, then profit is Rs. 28

Statement III: The cost price of the Pen is Rs. Q. Shopkeeper makes a profit of Rs. 56, if he gives a discount of 22.22%

- (A) II or (I + III)
(B) Only II
(C) Combination of any two statements
(D) Only III
(E) None of these

Q30 Direction : In each of the following questions three statements I, II and III are given to you. You have to decide which statement(s) is/are sufficient to answer the question.

Scheme 'A' offers an R% rate of interest on compound interest. Find the value of R?

Statement I: If the interest received on $2P/5$ sum of money invested for 11 years at 0.25R% interest on SI is half of amount P invested in scheme A for 2 years.

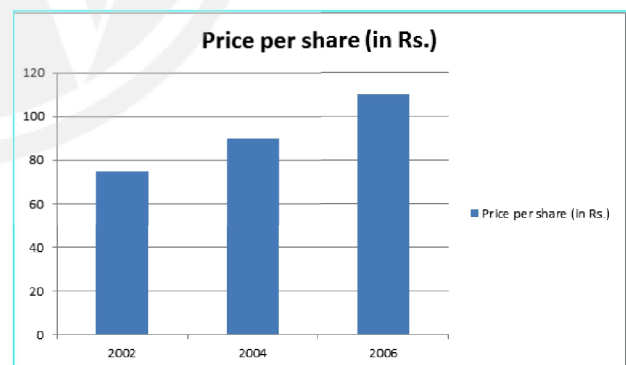
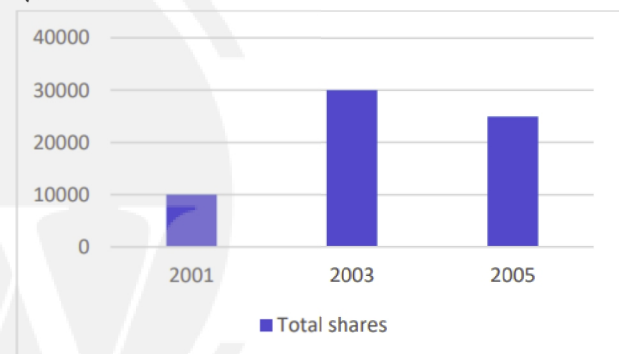
Statement II: If X is invested in scheme A for 2 years and amounts to Rs. 3600. If Rs. $16X/25$ is invested at $(R - 10)\%$ on CI for 2 years, it amounts to Rs. 1936.

Statement III: Difference between interests on Rs. Q invested in Scheme A for two years and three years is Rs. 1152.

- (A) Only I
(B) Only I or II
(C) Only I or III
(D) Any two statements are required
(E) None of these

Directions (31-35) Read the following passage and answer the given questions.

Read the data carefully and answer the questions.



Note: (i) Market value = Total number of shares $\times$ price of one share

(ii) Number of shares increased by 20% from 2001 to 2002 and price of share decreased by 5% from 2002 to 2003.

(iii) Price of shares decreased by 12% from 2005



to 2006 and the number of shares decreased by 10% from 2005 to 2006.

Q31 In 2002, 70% of the total market value was received from old shareholders and the rest received from new shareholders. Find the total market value received from new shareholders.

- (A) 140,000 (B) 350,000
(C) 27000 (D) 270,000
(E) 210,000

Q32 Find the ratio of total market value received in 2005 to that of in 2003.

- (A) 171 : 200
(B) 250 : 161
(C) 250 : 171
(D) 171 : 250
(E) 250 : 151

Q33 Find total market value in 2006.

- (A) 247, 5000
(B) 245, 5000
(C) 242, 5000
(D) 239, 5000
(E) 249, 5000

Q34 Find the percentage of increment in total market value in 2003 over 2002.

- (A) 117.5% (B) 132.5%
(C) 125.5% (D) 137.5%
(E) 127.5%

Q35 If the total number of shares in 2004 is 1750 more than the average number of shares in 2003 and 2006, then find the average number of shares from 2001 to 2006.

- (A) 20250 (B) 21250
(C) 22250 (D) 23250
(E) 19250

Q36 Average of present ages of A and B is 'x' years while A is 'x - 10' years older to B. If C is '2x - 23' years older to B and age of C after 7 years will be 28 years, then find the ratio of present ages of A to C.

- (A) 4: 3 (B) 5: 4
(C) 3: 2 (D) 5: 3
(E) 1:2

Q37 The time taken by the train to cross a pole in 6.25 seconds and also it takes 8 seconds to cross a bridge of length 35 m then find the time taken by the train to cross a tunnel of length 85 m with 30% less speed?

- (A) 25 seconds (B) 15 seconds
(C) 20 seconds (D) 18 seconds
(E) None of these

Q38 Geeta invested Rs (a + 200) at a simple interest rate of 10% per annum for 3 years in bank 1, and Rs (a + 600) at simple interest rate of 8% per annum for 2 years in bank 2. If he obtained the interest of Rs 272 more in bank 1 than bank 2, then find the average of the two given amounts.

- (A) Rs 2450 (B) Rs 2600
(C) Rs 2700 (D) Rs 3600
(E) None of these

Q39 Boats A and B are sailing in a river. Downstream distance covered by boat B in 't' seconds is 20% more than upstream distance covered by boat A in 't' seconds and speed of boat A in still water is 20 % more than that of boat B in still water. If the time taken by boat B to go 204 m upstream is 17 seconds, then find the speed of the stream?

- (A) 4 m/s (B) 3 m/s
(C) 2 m/s (D) 6 m/s
(E) 5 m/s

Q40 20 liters of a 25% alcohol solution is mixed with 'y' liters of a 50% alcohol solution and a resultant



solution of 40% alcohol is obtained. Then, '2y' liters of the resultant solution is mixed with 150 liters of a 60% alcohol solution, resulting in a solution of 50% alcohol. What is the percentage difference between 'y' and 20?

- (A) 10% (B) 25%
(C) 100% (D) 50%
(E) None of these

Directions (41-45) Read the following passage and answer the given questions.

Direction : carefully read the following information and give the answer of following questions.

Total income of five persons Aari, Bala, Chitra, Divya and Ezhil together is Rs.70000. Ratio of the total savings of all the persons together to the savings of Chitra is 11:2. Expenditure of Bala is half of the savings of Chitra. The expenditure of Bala is 25% of the expenditure of Divya and the expenditure of Ezhil is Rs.2000 more than the expenditure of Chitra. Income of Bala is Rs.12000 which is Rs.5000 more than the savings of Ezhil. Savings of Aari is 20% more than the savings of Divya and the ratio of the expenditure of Aari to the savings of Ezhil is 4:7. Total Expenditure of all the persons together is Rs.4000 more than the total savings of all the persons together.

Q41 What is the ratio of the income of Divya to Ezhil?

- (A) 1:1 (B) 1:2
(C) 2:1 (D) 3:4
(E) 4:3

Q42 What is the average income of Divya, Chitra and Ezhil?

- (A) 8000 (B) 11000
(C) 12000 (D) 10000

(E) 16000

Q43 What is the difference between the Savings and Expenditure of Bala, Chitra and Divya together?

- (A) 2300 (B) 1500
(C) 2000 (D) 2500
(E) 3000

Q44 The Savings of Aari is what percent of the income of Aari?

- (A) 51% (B) 54%
(C) 70% (D) 65%
(E) 60%

Q45 What is the ratio of the Savings to Expenditure of Ezhil?

- (A) 5:6 (B) 3:1
(C) 1:3 (D) 10:7
(E) 7:10

Q46 60 liters of Glycerine is mixed with 120 liters of water. X liter of total mixture is taken out and 30 liter Glycerine and 40 liter water are added in the mixture. The final mixture contains 70/120% Glycerine, find the quantity of the mixture that is taken out.

- (A) 80 (B) 70
(C) 60 (D) 90
(E) 50

Q47 The MP of an article is 30% above its manufacturing cost. The article is sold through a trader, who earns a 9.5% profit on his purchase price. What is the approx. profit percentage for the manufacturer who sells his article to the trader? The retailer gives a 7.5% discount on MP.

- (A) 9.81% (B) 8.81%
(C) 7.81% (D) 6.81%
(E) None of these

Q48



14 men and 12 women together can complete a piece of work in 8 days and work done by a woman in one day is half the work done by a man in one day. If 8 men and 4 women started working and after 5 days 3 men left the work and 8 new women joined then, in how many more days will the work be completed?

- (A) 25 Days (B) 15 Days
(C) 10 Days (D) 30 Days
(E) 35 days

Q49 Sum of present ages of Ashish and Prabhat is 55. Age of Ashish 3 years hence is equal to age of Anshika, 1 year ago. Age of Ashish, 4 years hence is equal to age of Prabhat 1 year ago and ratio of

present age of Prabhat and Sonu is 3 : 4. Find the difference of age of Anshika and Sonu.

- (A) 12 years (B) 9 years
(C) 11 years (D) 15 years
(E) None of these

Q50 25% of the voters did not cast their vote in an election of Mazdoor Union in Tata company between two candidates. 25% of the votes polled were found invalid. The winning candidate got 54% of the valid votes and won by a majority of 5240 votes. The number of voters enrolled voters' list was

- (A) 2,17,444 (B) 1,26,445
(C) 1,16,444 (D) 1,56,445
(E) None of these



Answer Key

Q1 (E)
Q2 (A)
Q3 (E)
Q4 (D)
Q5 (E)
Q6 (C)
Q7 (A)
Q8 (C)
Q9 (E)
Q10 (C)
Q11 (A)
Q12 (D)
Q13 (B)
Q14 (A)
Q15 (A)
Q16 (C)
Q17 (B)
Q18 (A)
Q19 (D)
Q20 (A)
Q21 (A)
Q22 (B)
Q23 (C)
Q24 (D)
Q25 (A)

Q26 (B)
Q27 (D)
Q28 (B)
Q29 (A)
Q30 (B)
Q31 (D)
Q32 (C)
Q33 (A)
Q34 (D)
Q35 (B)
Q36 (A)
Q37 (B)
Q38 (B)
Q39 (B)
Q40 (D)
Q41 (A)
Q42 (E)
Q43 (E)
Q44 (E)
Q45 (E)
Q46 (C)
Q47 (A)
Q48 (C)
Q49 (C)
Q50 (C)



Hints & Solutions

Q1 Text Solution:

$$2x^2 + 17x + 33 = 0$$

$$2x^2 + 6x + 11x + 33 = 0$$

$$2x(x+3)+11(x+3)=0$$

$$x = -\frac{11}{2}, -3$$

$$x^2 + 12x + 20 = 0$$

$$x^2 + 10x + 2x + 20 = 0$$

$$x(x+10)+2(x+10)=0$$

$$x = -10, -2$$

The relation can not be established

Q2 Text Solution:

From I:

$$2x^2 + 13x + 20 = 0$$

$$\text{Or, } 2x^2 + 8x + 5x + 20 = 0$$

$$\text{Or, } 2x(x+4) + 5(x+4) = 0$$

$$\text{Or, } (2x+5)(x+4) = 0$$

$$\text{So, } x = -(5/2) \text{ or } -4$$

From II:

$$y^2 + 11y + 30 = 0$$

$$\text{Or, } y^2 + 5y + 6y + 30 = 0$$

$$\text{Or, } y(y+5) + 6(y+5) = 0$$

$$\text{Or, } (y+6)(y+5) = 0$$

$$\text{So, } y = -6 \text{ or } -5$$

$$\text{So, } x > y$$

Q3 Text Solution:

$$(i) 16x^2 + 21x + 5 = 0$$

$$16x^2 + 16x + 5x + 5 = 0$$

$$16x(x+1) + 5(x+1) = 0$$

$$(x+1)(16x+5) = 0$$

$$x = -1, -\frac{5}{16}$$

$$(ii) 14y^2 + 19y + 5 = 0$$

$$14y^2 + 14y + 5y + 5 = 0$$

$$14y(y+1) + 5(y+1) = 0$$

$$(y+1)(14y+5) = 0$$

$$y = -1, -\frac{5}{14}$$

relation can not be established

Q4 Text Solution:

$$I) x^2 - 2x - 168 = 0$$

$$x^2 - 14x + 12x - 168 = 0$$

$$(x-14)(x+12) = 0$$

$$x = 14, -12$$

$$II) y^2 + 28y + 195 = 0$$

$$y^2 + 13y + 15y + 195 = 0$$

$$(y+13)(y+15) = 0$$

$$y = -13, -15$$

$$x > y$$

Q5 Text Solution:

$$I) x^2 - 5x - 104 = 0$$

$$x^2 - 13x + 8x - 104 = 0$$

$$x(x-13) + 8(x-13) = 0$$

$$(x-13)(x+8) = 0$$

$$x = 13, -8$$

$$II) y^2 - 27y + 182 = 0$$

$$y^2 - 14y - 13y + 182 = 0$$

$$y(y-14) - 13(y-14) = 0$$

$$(y-14)(y-13) = 0$$

$$y = 14, 13$$

$$x \leq y$$

Q6 Text Solution:

$$(? - 45.033) \div 3.92 = 150.022\% \text{ of } 15.999$$

$$\frac{?-45}{4} = \frac{150}{100} \times 16$$

$$? - 45 = 24 \times 4$$

$$? = 96 + 45$$

$$? = 141$$

Hence answer is 141.

Q7 Text Solution:

$$(18.18\% \times 879.99 + 7.12 \times 6.13 - 22.33) = x + 11.73$$

$$\left(\frac{18}{99} \times 880 + 7 \times 6 - 22\right) - 12 = x$$

$$x = 160 + 42 - 22 - 12$$

$$x = 168$$

Hence answer is 168.



Q8 Text Solution:

$$(14.88 \times 23.98) + (12.11\% \text{ of } 624.88) = ? \times 5.23$$

$$(15 \times 24) + (12\% \times 625) = ? \times 5$$

$$360 + 75 = ? \times 5$$

$$435 = ? \times 5$$

$$? = 435 \div 5$$

$$? = 87$$

Hence answer is 87

Q9 Text Solution:

By approximation, we get:

$$\sqrt{3025} \times \sqrt{144} + \sqrt{900} \times \sqrt{?} = 43 \times 25$$

$$55 \times 12 + 30 \times \sqrt{?} = 1075$$

$$660 + 30 \times \sqrt{?} = 1075$$

$$30 \times \sqrt{?} = 1075 - 660 = 415$$

$$\sqrt{?} = 13.83$$

$$? \approx 190$$

Hence answer is 190.

Q10 Text Solution:

$$\frac{360}{?} = (9)^3 - 14.5 \times 40 + (2)^2 - 81$$

$$\frac{360}{?} = 729 - 580 + 4 - 81$$

$$? = \frac{360}{72}$$

$$? = 5$$

Hence answer is 5.

Q11 Text Solution:

$$29 + 1^3 + 1 = 31$$

$$31 + 2^3 + 2 = 41$$

$$41 + 3^3 + 3 = 71$$

$$71 + 4^3 + 4 = 139$$

$$139 + 5^3 + 5 = 269$$

Similarly,

$$84 + 3^3 + 3 = 114$$

$$114 + 4^3 + 4 = 182 \text{ (Ans)}$$

Q12 Text Solution:

$$8 \times 1 - 1^2 = 7$$

$$7 \times 2 - 2^2 = 10$$

$$10 \times 3 - 3^2 = 21$$

$$21 \times 4 - 4^2 = 68$$

$$68 \times 5 - 5^2 = 315$$

Similarly:

$$12 \times 1 - 1^2 = 11$$

$$11 \times 2 - 2^2 = 18$$

$$18 \times 3 - 3^2 = 45$$

$$45 \times 4 - 4^2 = 164$$

$$164 \times 5 - 5^2 = 795$$

So, the value of $m = 795$

Hence, option d.

Q13 Text Solution:

$$62 + (2 \times 1) = 64$$

$$64 + (2 \times 3) = 70$$

$$70 + (2 \times 5) = 80$$

$$80 + (2 \times 7) = 94$$

$$94 + (2 \times 9) = 112$$

Hence, option B.

Q14 Text Solution:

$$10 \times 2 = 20$$

$$20 + 2 = 22$$

$$22 \times 2 = 44$$

$$44 + 2 = 46$$

$$46 \times 2 = 92$$

$$92 + 2 = 94$$

Q15 Text Solution:

The pattern of the series-I is:

$$25 + 2 = 27$$

$$27 - 6 = 21$$

$$21 + 12 = 33$$

$$33 - 20 = 13$$

$$13 + 30 = 43$$

Difference between the differences is:

$$2 + 4 = 6$$

$$6 + 6 = 12$$

$$12 + 8 = 20$$

$$20 + 10 = 30$$

So, $M = 43$

The pattern of the series-II is:

$$400 \times 0.5 = 200$$

$$200 \times 1.5 = 300$$



$$300 \times 2.5 = 750$$

$$750 \times 3.5 = 2625$$

$$2625 \times 4.5 = 11812.5$$

$$\text{So, } N = 200$$

$$\{(M - 6) + 2N\} = 43 - 6 + 2 \times 200 = 437$$

Q16 Text Solution:

Given, $1 \leq P \leq 3$, $4 \leq Q \leq 6$, and $7 \leq R \leq 9$

Quantity I:

For minimum value $P = 1$, $Q = 4$ and $R = 7$

$$\begin{aligned} & (P - Q)(Q - R)(R - P) + PQR \\ &= (1 - 4)(4 - 7)(7 - 1) + 1 \times 4 \times 7 \\ &= (-3) \times (-3) \times 6 + 28 \\ &= 54 + 28 \\ &= 82 \end{aligned}$$

And for maximum value $P = 3$, $Q = 6$ and $R = 9$

$$\begin{aligned} & (P - Q)(Q - R)(R - P) + PQR \\ &= (3 - 6)(6 - 9)(9 - 3) + 3 \times 6 \times 9 \\ &= (-3) \times (-3) \times 6 + 162 \\ &= 54 + 162 \\ &= 216 \end{aligned}$$

Hence, $82 \leq \text{Quantity I} \leq 216$

Quantity II:

For minimum value $P = 1$, $Q = 4$ and $R = 7$

$$\begin{aligned} & (PQ + QR)(P^2 + Q^2 + R^2) \\ &= (1 \times 4 + 4 \times 7)(1 + 16 + 49) \\ &= 32 \times 66 \\ &= 2112 \end{aligned}$$

And for maximum value $P = 3$, $Q = 6$ and $R = 9$

$$\begin{aligned} & (PQ + QR)(P^2 + Q^2 + R^2) \\ &= (3 \times 6 + 6 \times 9)(9 + 36 + 81) \\ &= 72 \times 126 \\ &= 9072 \\ &2112 \leq \text{Quantity II} \leq 9072 \end{aligned}$$

Therefore, Quantity I < Quantity II

Q17 Text Solution:

Quantity I:

$$x^2 - 2x - 35 = 0$$

$$x^2 - 7x + 5x - 35 = 0$$

$$x(x - 7) + 5(x - 7) = 0$$

$$(x - 7)(x + 5) = 0$$

$$x = 7, -5$$

When '7' is the common root.

$$x^2 - Ax + 10 = 0$$

$$7^2 - 7A + 10 = 0$$

$$7A = 59$$

$$A = \frac{59}{7}$$

When '-5' is the common root.

$$x^2 - Ax + 10 = 0$$

$$(-5)^2 + 5A + 10 = 0$$

$$5A = -35$$

$$A = -7$$

Quantity II:

Let ages of P and Q are $2x$ and $3x$ respectively.

According to the question:

$$2x + 3x > 25$$

$$5x > 25$$

$$x > 5$$

$$\text{Age of P} = 2x$$

Hence, the age of P is more than 10 years.

Hence, Quantity I < Quantity II

Q18 Text Solution:

Quantity-I:

Cost price of scooter for Draupadi = $24000 \times$

$$0.85 \times 0.9 = \text{Rs. } 18360$$

So, total cost price of scooter for Draupadi

$$= 18360 + 2500 = \text{Rs. } 20860$$



Therefore, required percentage profit =

$$\frac{(26075 - 20860)}{20860} \times 100 = 25\%$$

Quantity-II:

Let, total marks of examination be x.

According to question,

$$0.32x + 15 + 0.1x = 120$$

$$0.42x = 120 - 15$$

$$0.42x = 105$$

$$x = \frac{105}{0.42}$$

$$x = 250$$

Therefore, required percentage = $\frac{60}{250} \times 100 = 24\%$

Hence, option a.

Q19 Text Solution:

Common solution:

Difference between maximum and minimum temperatures on Monday = $90 \times \frac{48}{360} = 12^\circ\text{C}$

Difference between maximum and minimum temperatures on Tuesday = $90 \times \frac{80}{360} = 20^\circ\text{C}$

Difference between maximum and minimum temperatures on Wednesday = $90 \times \frac{72}{360} = 18^\circ\text{C}$

Difference between maximum and minimum temperatures on Thursday = $90 \times \frac{40}{360} = 10^\circ\text{C}$

Difference between maximum and minimum temperatures on Friday = $90 \times \frac{32}{360} = 8^\circ\text{C}$

Difference between maximum and minimum temperatures on Saturday = $90 \times \frac{88}{360} = 22^\circ\text{C}$

Maximum temperature on Tuesday = 40°C

So, minimum temperature on Tuesday = $40 - 20 = 20^\circ\text{C}$

Maximum temperature on Friday = 40°C

So, minimum temperature on Friday = $40 - 8 = 32^\circ\text{C}$

Required ratio = $20 : 32 = 5 : 8$

Q20 Text Solution:

Common solution:

Difference between maximum and minimum temperatures on Monday =

$$90 \times \frac{48}{360} = 12^\circ\text{C}$$

Difference between maximum and minimum temperatures on Tuesday = $90 \times \frac{80}{360} = 20^\circ\text{C}$

Difference between maximum and minimum temperatures on Wednesday = $90 \times \frac{72}{360} = 18^\circ\text{C}$

Difference between maximum and minimum temperatures on Thursday = $90 \times \frac{40}{360} = 10^\circ\text{C}$

Difference between maximum and minimum temperatures on Friday = $90 \times \frac{32}{360} = 8^\circ\text{C}$

Difference between maximum and minimum temperatures on Saturday = $90 \times \frac{88}{360} = 22^\circ\text{C}$

Difference between maximum and minimum temperature on Wednesday = 18°C

Difference between maximum and minimum temperature on Saturday = 22°C

Required percentage =

$$\frac{22 - 18}{18} \times 100 = 22.22\%$$

Q21 Text Solution:

Common solution:

Difference between maximum and minimum temperatures on Monday =

$$90 \times \frac{48}{360} = 12^\circ\text{C}$$

Difference between maximum and minimum temperatures on Tuesday = $90 \times \frac{80}{360} = 20^\circ\text{C}$

Difference between maximum and minimum temperatures on Wednesday = $90 \times \frac{72}{360} = 18^\circ\text{C}$

Difference between maximum and minimum temperatures on Thursday = $90 \times \frac{40}{360} = 10^\circ\text{C}$

Difference between maximum and minimum temperatures on Friday = $90 \times \frac{32}{360} = 8^\circ\text{C}$

Difference between maximum and minimum temperatures on Saturday = $90 \times \frac{88}{360} = 22^\circ\text{C}$

Maximum temperature on Wednesday = 38°C

So, minimum temperature on Wednesday = $38 - 18 = 20^\circ\text{C}$

Maximum temperature on Thursday = 30°C

So, minimum temperature on Thursday = $30 - 10 = 20^\circ\text{C}$

Required percentage = $\frac{20}{20} \times 100 = 100\%$



Q22 Text Solution:

Common solution:

Difference between maximum and minimum temperatures on Monday =

$$90 \times \frac{48}{360} = 12^\circ\text{C}$$

Difference between maximum and minimum temperatures on Tuesday = $90 \times \frac{80}{360} = 20^\circ\text{C}$

Difference between maximum and minimum temperatures on Wednesday = $90 \times \frac{72}{360} = 18^\circ\text{C}$

Difference between maximum and minimum temperatures on Thursday = $90 \times \frac{40}{360} = 10^\circ\text{C}$

Difference between maximum and minimum temperatures on Friday = $90 \times \frac{32}{360} = 8^\circ\text{C}$

Difference between maximum and minimum temperatures on Saturday = $90 \times \frac{88}{360} = 22^\circ\text{C}$

Minimum temperature on Thursday = 25°C

So, maximum temperature on Thursday = $25 + 10 = 35^\circ\text{C}$

Maximum temperature on Sunday = $35 \times \frac{8}{7} = 40^\circ\text{C}$

And minimum temperature on Sunday = $40 - 10 = 30^\circ\text{C}$

Required ratio = $25 : 30 = 5 : 6$

Q23 Text Solution:

Common solution:

Difference between maximum and minimum temperatures on Monday =

$$90 \times \frac{48}{360} = 12^\circ\text{C}$$

Difference between maximum and minimum temperatures on Tuesday = $90 \times \frac{80}{360} = 20^\circ\text{C}$

Difference between maximum and minimum temperatures on Wednesday = $90 \times \frac{72}{360} = 18^\circ\text{C}$

Difference between maximum and minimum temperatures on Thursday = $90 \times \frac{40}{360} = 10^\circ\text{C}$

Difference between maximum and minimum temperatures on Friday = $90 \times \frac{32}{360} = 8^\circ\text{C}$

Difference between maximum and minimum temperatures on Saturday = $90 \times \frac{88}{360} = 22^\circ\text{C}$

Sum of maximum temperatures on Monday and Saturday = $2 \times 40 = 80^\circ\text{C}$

So, sum of minimum temperatures on Monday and Saturday = $80 - 12 - 22 = 46^\circ\text{C}$

Required average = $\frac{46}{2} = 23^\circ\text{C}$

Q24. Text Solution:

Blue Shirt sold from store A = 10,400

Grey Shirt sold from store A = $10,400 \times \frac{5}{4} = 13,000$

Blue Shirt sold from store D = 8100

Number of red shirts sold from store D are 1860 more than the number of grey shirts sold from the same store. Then,

Red Shirt sold from store D = $\frac{21300+1860}{2} = 11580$

Grey Shirt sold from store D = $11580 - 1860 = 9720$

Average of number of grey shirts sold from store B and D together is 9660. Then, Grey Shirt sold from store B = $2 \times 9660 - 9720 = 9600$

Blue Shirt sold from store B = $9600 \times \frac{13}{15} = 8320$

Red Shirt sold from store B = $17080 - 9600 = 7480$

Respective ratio of the number of red and grey shirts sold from store E is 7 : 11. Then, Red Shirt sold from store E

$$= 18000 \times \frac{7}{18} = 7000$$

Grey Shirt sold from store E = $18000 - 7000 = 11000$

Then, blue Shirt sold from store E = $11000 \times \frac{12}{11} = 12,000$

The sum of blue shirts sold from store E and C together is 29,000. Then,

Blue Shirt sold from store C = $29,000 - 12000 = 17000$

Grey Shirt sold from store C



$$= 17000 \times \frac{10}{17} = 10,000$$

In tabular form:

Store	Number of red Shirt sold	Number of grey Shirt sold	Number of blue Shirt sold
A	----	13,000	10,400
B	7480	9600	8320
C	----	10,000	17,000
D	11580	9720	8100
E	7000	11,000	12,000

Here, the average of the number of grey Shirt sold from store D and E has taken together

$$= \frac{9720 + 11,000}{2} = 10360$$

And, the average number of blue Shirt sold from store B and C has taken together

$$= \frac{8320 + 17,000}{2} = 12,660$$

Therefore, difference

$$= 12660 - 10360 = 2300$$

Q25. Text Solution:

Here, number of grey Shirt sold from store B and C taken together

$$= 9600 + 10,000 = 19,600$$

And, number of red, grey and blue Shirt sold from store E = 18000 + 12000 = 30,000

$$\text{Therefore, ratio} = 19600 : 30,000 = 49 : 75$$

Q26. Text Solution:

Price of each color Shirt sold from store B = 120

Number of Shirt sold from store B

$$= 17,080 + 8320 = 25,400$$

Earnings of store B = 120 × 25400 = 3,048,000

Price of each color Shirt sold from store D = 80

Number of Shirt sold from store D = 21300 +

$$8100 = 29,400$$

Earnings of store D = 80 × 29,400 = 2,352,000

Therefore, difference = 3,048,000 – 2,352,000 = Rs. 696,000

Q27. Text Solution:

Number of red Shirt sold from store B = 7480

Then, number of red Shirt sold from store C = 2 × 4995 – 7480 = 2510

Number of grey Shirt sold from store A = 13,000

Then, the number of red Shirt sold from store A = 18000 – 13,000 = 5000

Therefore, the average number of red Shirt sold from store A and C has taken together

$$= \frac{5000 + 2510}{2} = 3755$$

Q28. Text Solution:

Number of red and blue Shirt together sold from store B = 7480 + 8320 = 15,800

And, number of grey Shirt sold from A and E together = 13000 + 11000 = 24,000

Difference = 24,000 – 15,800 = 8,200

Therefore, percentage

$$= \left(\frac{8,200}{24,000} \right) \times 100 = 34\% \text{ (approx.)}$$

Q29 Text Solution:

Statement I alone is not sufficient to answer the question.

Statement II

120% of P = 95% of K

$$\frac{P}{K} = \frac{19}{24}$$

If he sells the article at the marked price then profit is Rs. 28

Then, (24 – 19) units = 28

$$5 = 28$$

$$1 = 5.6$$

Then value of K = 5.6 × 24 = Rs. 134.4

This statement is sufficient to answer the question.

On combining (I + III),



Mark up % is 80%

So $Q/K = 5/9$

Discount = 22.222%

So ratio of $SP/K = 7/9$

So, CP: SP: MRP = 5:7:9

Profit is Rs. 70

So 2 units = Rs. 56

1 unit = 28

So required value of $K = 28 \times 9 = \text{Rs. } 252$

Statement II alone or statement (I + III) is sufficient to answer the question.

Q30 Text Solution:

Simple interest earned = $\frac{2P}{5} \times \frac{R}{400} \times 11 = 0.011PR$

Compound interest earned on $P =$

$$P \left[\left(1 + \frac{R}{100} \right)^2 - 1 \right]$$

Now,

$$P \left[\left(1 + \frac{R}{100} \right)^2 - 1 \right] = 0.011PR \times 2$$

$$2R + \frac{R^2}{100} = 2.2R$$

$$\frac{R^2}{100} = 0.2R$$

So $R = 20\%$

This statement is sufficient to answer the question.

Statement II: X is invested in scheme A for 2 years and amounts to Rs. 3600. Rs. $\frac{16X}{25}$ is invested at $(R - 10)\%$ on CI for 2 years, it amounts to Rs. 1936

$$\text{So, } 3600 = X \left[\frac{(100 + R)}{100} \right]^2 \dots \dots \dots (1)$$

$$\text{Also, } 1936 = \frac{16X}{25} \left[\frac{(100 + R - 10)}{100} \right]^2 \dots \dots \dots (2)$$

$$\text{On diving both equations } \frac{3600}{1936} = \frac{25}{16} \times \frac{(100 + R)^2}{(90 + R)^2}$$

$$\frac{60}{44} = \frac{5}{4} \times \frac{(100 + R)}{(90 + R)}$$

$$1100 + 11R = 1080 + 12R$$

$R = 20\%$

This statement is alone sufficient to answer the question.

Statement III: We don't know about the value of Q.

So we can't calculate the value R.

This statement is not sufficient to answer the question.

Q31. Text Solution:

$$\text{Total shares in 2002} = 10000 \times \frac{120}{100} = 12000$$

Total market value received from new

$$\text{shareholders} = 12000 \times 75 \times \frac{30}{100} = 270,000$$

Q32. Text Solution:

$$\text{Price of per share in 2005} = 110 \times \frac{100}{88} =$$

Rs 125

Price of per share in

$$2003 = 75 \times \frac{95}{100} = \text{Rs } \frac{285}{4}$$

Required ratio

$$= (25000 \times 125) : (30000 \times \frac{285}{4}) = 250 : 171$$

Q33. Text Solution:

Total number of shares in

$$2006 = 25000 \times \frac{90}{100} = 22500$$

Total market value in

$$2006 = 22500 \times 110 = 2475000$$

Q34. Text Solution:

$$\text{Total shares in 2002} = 10000 \times \frac{120}{100} = 12000$$

Total market value in

$$2002 = 12000 \times 75 = 900000$$

$$\text{Price of per share in 2003} = 75 \times \frac{95}{100} = \frac{285}{4}$$

Total market value in

$$2003 = \frac{285}{4} \times 30000 = 2137500$$

Required percentage

$$= \frac{2137500 - 900000}{900000} \times 100 = 137.5\%$$

Q35. Text Solution:

$$\text{Total shares in 2006} = 25000 \times \frac{90}{100} = 22500$$

Total number of shares in

$$2004 = \frac{22500 + 30000}{2} + 1750 = 28000$$

Required average =

$$\frac{10000 + 12000 + 30000 + 28000 + 25000 + 22500}{6} = 21250$$



Q36 Text Solution:

Age of C after 7 years = 28 years

Present age of C = 28 - 7

$$2x - 23 = 21$$

$$x = 22$$

Average of present ages of A and B = $x = 22$ years

The sum of present ages of A and B = $22 \times 2 = 44$ years

Difference between present ages of A and B = $x - 10 = 12$ years

$$\text{The present age of A} = \frac{44+12}{2} = 28 \text{ years}$$

Required ratio = 28: 21
= 4: 3

Q37 Text Solution:

Speed of the train as "s" meters per second

The length of the Train = $s \times 6.25$

$$s = \frac{(s \times 6.25 + 35)}{8}$$

$$8s = 6.25s + 35$$

$$1.75s = 35$$

$s = 20$ meters per second

Length of the Train = $20 \times 6.25 = 125$ meter

Time taken by the train to cross a tunnel of length 85 m with 30% less speed

$$t = \frac{(125 + 85)}{(20 \times 70\%)}$$

$$t = \frac{210}{14}$$

$$t = 15 \text{ seconds}$$

Q38 Text Solution:

According to the question,

$$(a + 200) \times 10 \times 3 - (a + 600) \times 8 \times 2 = 272 \times 100$$

$$30a + 6000 - 16a - 9600 = 27200$$

$$14a = 27200 + 3600$$

$$14a = 30800$$

$$a = \frac{30800}{14}$$

$$a = 2200$$

So, the amounts invested by Geeta are Rs. 2400 and Rs. 2800.

Therefore, the required average

$$= \frac{(2400 + 2800)}{2} = \text{Rs. } 2600$$

Q39 Text Solution:

Let speed of boat B in still water = '5x' m/s

So, speed of boat A in still water = 120% of 5x = '6x' m/s

Let speed of stream = 'y' m/s

$$(5x + y) \times t = (6x - y) \times t \times \left(\frac{120}{100}\right)$$

$$25x + 5y = 36x - 6y$$

$$x = y - (1)$$

Since, time taken by boat B to go 204 m upstream is 17 seconds.

$$(5x - y) = \frac{204}{17}$$

From equation (1):

$$5y - y = 12$$

$$y = 3$$

So, speed of stream = 3 m/s

Q40 Text Solution:

Let's first determine the amount of alcohol in the initial 25% alcohol solution. 25% alcohol means that there are 25 liters of alcohol in 100 liters of the solution.

Therefore, in 20 liters of the solution, there are = 5 liters of alcohol.

Let's assume that there are 'x' liters of the 50% alcohol solution added to the 20 liters of 25% alcohol solution. Therefore, the total amount of alcohol in the mixture is $5 + 0.5x$. The total volume of the mixture is $(20 + x)$ liters.

According to the question, a 40% alcohol solution is obtained after mixing the two solutions. This means that:

$$= 0.4$$

Multiplying both sides by $(20 + x)$, we get:



$$5 + 0.5x = 0.4(20 + x)$$

Simplifying, we get:

$$5 + 0.5x = 8 + 0.4x$$

Subtracting $0.4x$ from both sides, we get:

$$0.1x = 3$$

$$x = 30$$

Therefore, 'y' is 30 liters, and the percentage difference between 'y' and 20 is:

$$= \frac{y-20}{20} \times 100 = \frac{30-20}{20} \times 100 = 50\%$$

Therefore, 'y' is 50% more than 20.

Q41. Text Solution:

$$\text{Solution Total savings} = \frac{(70000 - 4000)}{2} = \text{Rs.}33000$$

$$\text{Total expenditure} = 33000 + 4000 = 37000$$

$$\text{Savings of Chitra} = \frac{2}{11} \times 33000 = 6000$$

$$\text{Income of Bala} = 12000$$

$$\text{Expenditure of Bala} = \frac{6000}{2} = 3000$$

$$\text{Savings of Bala} = 12000 - 3000 = 9000$$

$$\text{Expenditure of Divya} = \frac{100}{25} \times 3000 = 12000$$

$$\text{Savings of Ezhil} = 12000 - 5000 = 7000$$

$$\text{Savings of Aari and Divya} = 33000 - 6000 - 9000 - 7000 = 11000$$

$$\text{Ratio of the savings of Aari and Divya} = 120:100 = 6:5$$

$$\text{Savings of Aari} = \frac{6}{11} \times 11000 = 6000$$

$$\text{Savings of Divya} = \frac{5}{11} \times 11000 = 5000$$

$$\text{Expenditure of Aari} = \frac{4}{7} \times 7000 = 4000$$

$$\text{Expenditure of Chitra and Ezhil} = 37000 - 4000$$

$$- 3000 - 12000 = 18000$$

Expenditure of Ezhil is Rs.2000 more than the expenditure of Chitra.

$$\text{Expenditure of Ezhil} = 10000$$

$$\text{Expenditure of Chitra} = 8000$$

$$\text{Required ratio} = (5000 + 12000):(7000 + 10000) = 1:1$$

Q42. Text Solution:

Required average =

$$\frac{(8000 + 6000) + (10000 + 7000) + (5000 + 12000)}{3}$$

$$= \frac{(14000 + 17000 + 17000)}{3}$$

$$= \frac{48000}{3}$$

$$= 16000$$

Q43. Text Solution:

$$\text{Savings of Bala, Chitra and Divya} = 9000 +$$

$$6000 + 5000 = 20000$$

$$\text{Expenditure of Bala, Chitra and Divya} = 3000 +$$

$$8000 + 12000 = 23000$$

$$\text{Required Difference} = 23000 - 20000 = 3000$$

Q44. Text Solution:

$$\text{Required percentage} = \frac{6000}{10000} \times 100$$

$$= 60\%$$

Q45. Text Solution:

$$\text{Required ratio} = 7000:10000 = 7:10$$

Q46 Text Solution:

The ratio of glycerine: water 1:2

When the 3k l mixture is taken out,

Quantity of glycerin taken out = k

Quantity of water taken out = $2k$

Now;

Quantity of glycerine

$$= 60 + 30 - k = 90 - k$$

Quantity of water

$$= 120 + 40 - 2k = 160 - 2k$$

As per the question;

$$\frac{(90-k)}{(160-2k)} = 7/12$$

$$\Rightarrow 1080 - 12k = 1120 - 14k$$

$$\Rightarrow 40 = 2k$$

$$\Rightarrow k = 20 \text{ l}$$

Therefore; total quantity of mixture taken out, X

$$= 3k = 60 \text{ lit}$$

Q47 Text Solution:

The manufacturer sells the product to the trader, and then the trader sells to the customer.

Assume manufacturing cost = 100

And manufacturer profit = x



As Marked Price (MP) of a product is 30% above its manufacturing cost,

$$MP = 130\% \text{ of } 100 = 130$$

The trader gives 7.5% discount on MP.

So, the customer price is 92.5% of MP.

$$\text{Buyer Price} = 92.5\% \text{ of } 130 = 120.25$$

Manufacturer makes x rupees profit, and then the trader makes 9.5% profit.

$$\text{So, } 109.5\% \text{ of } (100 + x) = 120.25$$

$$\Rightarrow 109.5 (100 + x) = 12025$$

$$\Rightarrow (100 + x) = 109.81$$

$$\Rightarrow x = 9.81$$

So. 9.81 profit on 100

Hence, Manufacturer profit = 9.81%

Q48 Text Solution:

Let work done by women be 2 units respectively.

Work done by men in 1 day = 4 units

Total work to be done

$$= (14(4) + 12(2))8 = 640 \text{ units}$$

Work done by 8 men and 4 women in 5 days

$$= 5[8(4) + 4(2)] = 200 \text{ units}$$

$$\text{Work left} = 640 - 200 = 440 \text{ units}$$

$$\text{Men left} = 8 - 3 = 5$$

Time taken by 5 men and 12 women

$$= \frac{440}{[5(4) + 12(2)]}$$

$$= \frac{440}{44} = 10 \text{ days}$$

Q49 Text Solution:

According to the given data,

$$\text{Ashish} + \text{Prabhat} = 55 \dots\dots(1)$$

$$\text{Anshika} - 1 = \text{Ashish} + 3$$

$$\text{Anshika} = \text{Ashish} + 4$$

and

$$\text{Ashish} + 4 = \text{Prabhat} - 1$$

$$\Rightarrow \text{Prabhat} = \text{Ashish} + 5 \dots\dots(2)$$

From (1)&(2)

$$2 \text{ Ashish} = 55 - 5$$

$$\text{Ashish} = 25 \text{ years}$$

$$\text{Prabhat} = 30 \text{ years}$$

$$\text{Anshika} = 29 \text{ years}$$

$$\frac{\text{Prabhat}}{\text{Sonu}} = \frac{3}{4}$$

$$\Rightarrow \frac{30}{\text{Sonu}} = \frac{3}{4}$$

$$\Rightarrow \text{Sonu} = 40 \text{ years}$$

$$\text{Required Difference} = \text{Sonu} - \text{Anshika} = 40 - 29 = 11 \text{ years.}$$

Q50 Text Solution:

Let the total number of voters be x . Then, votes polled

$$= 75\% \text{ of } x.$$

Valid votes = 75% of (75% of x).

$$\therefore 54\% \text{ of } [75\% \text{ of } (75\% \text{ of } x)] - 46\% \text{ of } [75\% \text{ of } (75\% \text{ of } x)] = 5240$$

$$\Leftrightarrow 8\% \text{ of } [75\% \text{ of } (75\% \text{ of } x)] = 5240$$

$$\Leftrightarrow \frac{8}{100} \times \frac{75}{100} \times \frac{75}{100} \times x = 5240$$

$$\Leftrightarrow x = \left(\frac{5240 \times 100 \times 100 \times 100}{8 \times 75 \times 75} \right) = 1,16,444$$





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