

200 Questions of Quantitative Aptitude

Directions (1-15): What approximate value should come in place of question mark (?) in the following questions?

Q1. $(\sqrt{625.021} + \sqrt{1599.78}) \div (560.31\% \text{ of } 30 - 250.23\% \text{ of } 62) = ?$

- (a) 2
- (b) 3
- (c) 4
- (d) 5
- (e) 6

Q2. $? = 729.11 \div 26.97 \times 81.11 \div 35.91 \times 108.18$

- (a) 2187
- (b) 6561
- (c) 729
- (d) 243
- (e) 81

Q3. $?^2 + (32.08)^2 - \sqrt{144.44} \times (7.99)^2 = 72.9\% \text{ of } 401.1$

- (a) 3
- (b) 12
- (c) 8
- (d) 4
- (e) 6

Q4. $47.87\% \text{ of } 350 + 60.11\% \text{ of } 280 = 96.98\% \text{ of } 299.78 + ?\% \text{ of } 150$

- (a) 30
- (b) 40
- (c) 50
- (d) 80
- (e) 45

Q5. $2^7 = 128.18 \times 511.77 \div 2047.59 \div 31.89 \times 15.91$

- (a) -4
- (b) 6
- (c) 8
- (d) 5
- (e) 4

Q6. $59.77\% \text{ of } 880 + 79.9\% \text{ of } 591 = ?$

- (a) 1000
- (b) 950
- (c) 1100
- (d) 1050
- (e) 900

Q7. $13.9 \times 6.01 \div 41.89 = ? \div 5.9$

- (a) 15
- (b) 12
- (c) 25
- (d) 7
- (e) 18

Q8. $899 \div 44.8 \times 4.05 \times 69.8 = ?$

- (a) 6300
- (b) 5000
- (c) 5600
- (d) 5800
- (e) 6000

Q9. $44.44 \div 4.4 \div 10.1 = (?)^2 \div 100$

- (a) 10
- (b) 14
- (c) 20
- (d) 15
- (e) 25

Q10. $4.9 \times 11.9 + 8.9 = ? - 3.9 - 11.1$

- (a) 87
- (b) 91
- (c) 77
- (d) 74
- (e) 84

Q11. $1999.92 \div 49.87 \times 3.01 + 5.13 = (?)^3$

- (a) 5
- (b) 8
- (c) 9
- (d) 2
- (e) 3

Q12. $59.9\% \text{ of } 319.94 + 9.99\% \text{ of } 1600.01 = -177 + (?)^2$

- (a) 26
- (b) 33
- (c) 23
- (d) 20
- (e) 40

Q13. $1.101 + 11.01 + 101.01 \div 1.01 = ?$

- (a) 109
- (b) 116
- (c) 101
- (d) 113
- (e) 117

Q14. $\sqrt{2024} \times \sqrt{9.21} - 35.01 = ? \times 10.1$

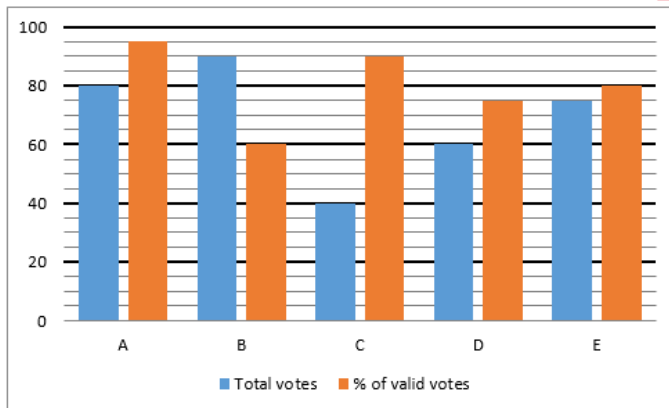
- (a) 10
- (b) 12
- (c) 14
- (d) 20
- (e) 15

Q15. $1390.98 \div 26.04 \times 1.99 = ? - 16^2$

- (a) 324
- (b) 413
- (c) 400
- (d) 343
- (e) 363

Directions (16-20): Study the bar chart given below and answer the following questions.

Bar chart shows the total votes (in '000) in 5 different cities (A, B, C, D & E) and percentage of valid votes out of total votes in these 5 cities.



Q16. In A, ratio of valid votes received by BJP, INC & SP is 11 : 3 : 5. If BJP win the election by 24000 votes, then find valid votes received by INC & SP together.

- (a) 28000
- (b) 40000
- (c) 45000
- (d) 32000
- (e) 21000

Q17. If in D there are only two parties-BJP & INC and BJP got 70% of the total valid votes, then find by how many votes BJP won the election in D.

- (a) 18000
- (b) 25000
- (c) 10000
- (d) 16000
- (e) 6000

Q18. If in E INC got 15000 more valid votes than AAP and BJP won the election by 15000 votes, then find the valid votes received by BJP. (There are only three parties in E - BJP, INC & AAP)

- (a) 40000
- (b) 38000
- (c) 45000
- (d) 35000
- (e) 30000

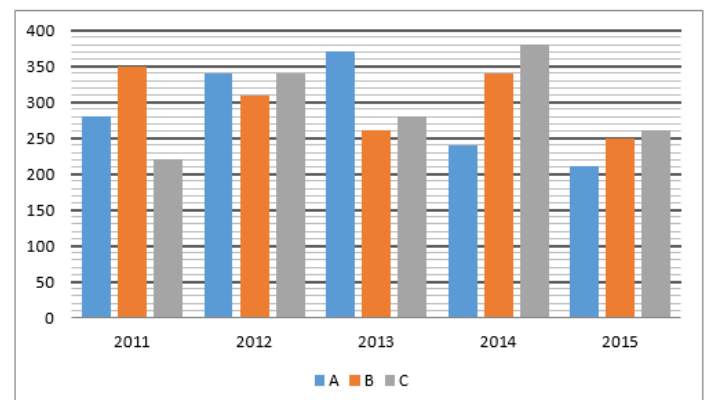
Q19. In B there are only two parties - BJP & INC. If BJP got 60% of total votes in B and ratio of invalid votes received by BJP and INC is 2 : 1, then find valid votes received by INC in B.

- (a) 24000
- (b) 27000
- (c) 22000
- (d) 20000
- (e) 25000

Q20. In C there are four parties - BJP, INC, SP & AAP. If ratio of valid votes received by BJP, INC, SP & AAP in C is 4 : 2 : 3 : 3 and ratio of invalid votes received by BJP, INC, SP & AAP in C is 1 : 3 : 4 : 2, then find difference between total votes received by INC & SP in C.

- (a) 2000
- (b) 3500
- (c) 3400
- (d) 2100
- (e) 2700

Directions (21-25): Given bar graph shows the details of number of students in a particular class of 3 different schools in 5 different years.



Q21. What is the difference between average number of students of school A across all the years and the average number of students of school B across all the years?

- (a) 18
- (b) 10
- (c) 12
- (d) 14
- (e) 16

Q22. Find the respective ratio of the total number of students of school A in 2011 and 2012 together to the total number of students of school C in 2013 and 2014 together?

- (a) 31:33
- (b) 47:55
- (c) 55:47
- (d) 33:31
- (e) 31:37

Q23. If in 2016, the total number of students in School A, School B and School C increases by 10%, 20% and 15% respectively as compared to 2015, then find the total number of students in 2016 in all the schools together?

- (a) 850
- (b) 870
- (c) 780
- (d) 830
- (e) 800

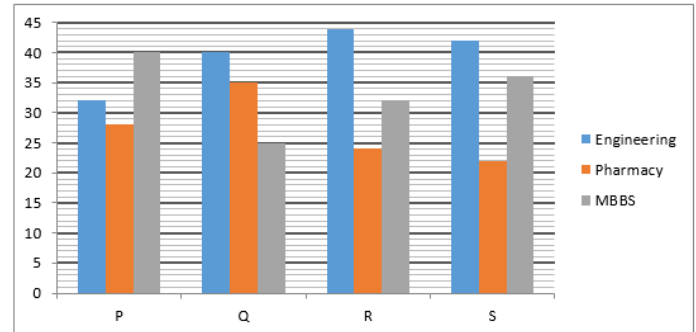
Q24. Total students of all the school together in 2013 is approximately what percentage more/less than the total students of school B in 2011 and 2015 together?

- (a) 52%
- (b) 59%
- (c) 56%
- (d) 63%
- (e) 48%

Q25. Find the difference between the number of total students from all the schools in 2011 and 2013 together and the total number of students from all the schools in 2014 and 2015 together?

- (a) 140
- (b) 60
- (c) 120
- (d) 80
- (e) 100

Directions (26-30): Given bar graph shows the percentage distribution of total number of students of each school (P, Q, R & S) who took admission in 3 different streams. Total students in P, Q, R & S are 700, 800, 400 & 900 respectively.



Q26. What is average number of students who have opted for MBBS in all the 4 colleges?

- (a) 256
- (b) 233
- (c) 284
- (d) 224
- (e) 296

Q27. What is the ratio of the total number of student who have opted for both engg. and MBBS stream together in college Q to that of in same stream together in college R?

- (a) 38:65
- (b) 67:35
- (c) 35:67
- (d) 65:38
- (e) 29:37

Q28. The number of student who have opted for MBBS in college P is what percent of the number of students who have opted for the engg. in college Q?

- (a) 87.5%
- (b) 50%
- (c) 75%
- (d) 100%
- (e) 62.5%

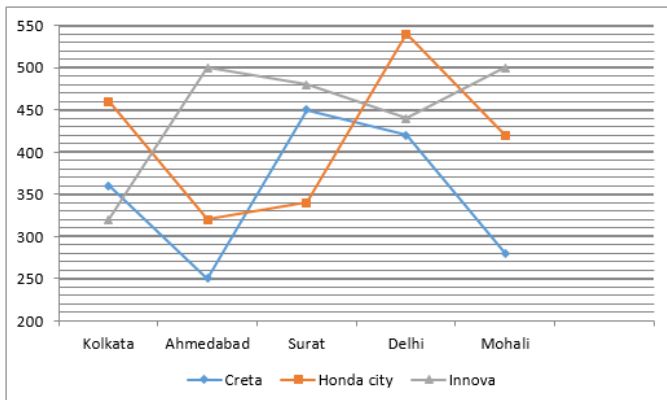
Q29. What is the ratio of the no. of students who have opted for engg. in college R to that of those who have opted for same stream in college P?

- (a) 14:11
- (b) 17:13
- (c) 11:14
- (d) 13:17
- (e) None of these

Q30. Which of the combination represents the colleges with maximum number of students, who have opted for pharmacy and those who have opted for engg. respectively?

- (a) P & R
- (b) Q & S
- (c) Q & R
- (d) R & S
- (e) P & Q

Directions (31-35): following line graph shows the data of 3 different types of cars sold in 5 different cities.



Q31. Number of Honda city car sold in Ahmedabad is what percent of total Innova car sold in Surat?

- (a) 50%
- (b) $66\frac{2}{3}\%$
- (c) 70%
- (d) $57\frac{1}{7}\%$
- (e) 80%



Q32. Find the respective ratio of Creta car sold in Delhi and Mohali together to the total of Innova car sold in Kolkata and Ahmedabad together?

- (a) 41:35
- (b) 46:53
- (c) 26:35
- (d) 35:41
- (e) 35:54

Q33. Find the total number of cars sold in Kolkata?

- (a) 1140
- (b) 1170
- (c) 1250
- (d) 1300
- (e) 1080

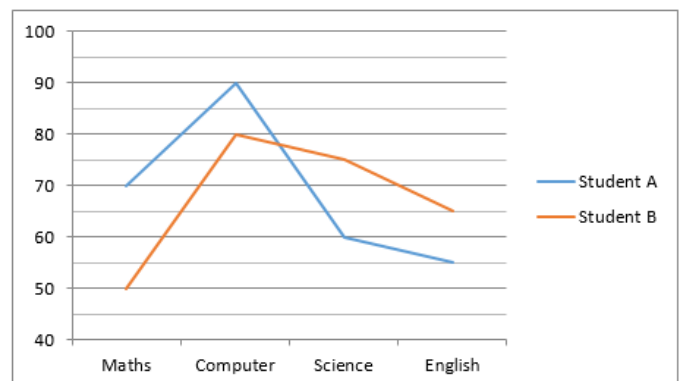
Q34. Find the difference between number of Honda city cars sold in delhi and number of creta cars sold in surat?

- (a) 70
- (b) 110
- (c) 80
- (d) 100
- (e) 90

Q35. Find the average number of Honda city car sold in all the cities?

- (a) 420
- (b) 426
- (c) 416
- (d) 430
- (e) 435

Directions (36-40): Following Line Graph shows the marks scored by Student A and Student B in high school in different Subjects.(Maximum Marks is 100 for each subject). Study the data carefully and answer the following questions.



Q36. What is difference between average marks scored by Student A and Student B in all subjects?

- (a) 1.75
- (b) 1.45
- (c) 1.50
- (d) 1.25
- (e) 1

Q37. What is Ratio of marks obtained by Student A in Maths and Computer together to the marks obtained by Student B in Science and English together?

- (a) 7:5
- (b) 7:8
- (c) 8:7
- (d) 8:5
- (e) 5:7

Q38. What is the overall percentage marks scored by Student B?

- (a) 68.75 %
- (b) 67.5 %
- (c) 68%
- (d) 67%
- (e) 69.25%

Q39. Marks Scored by Student A in Math is what percent of marks scored by Student B in Science and English together?

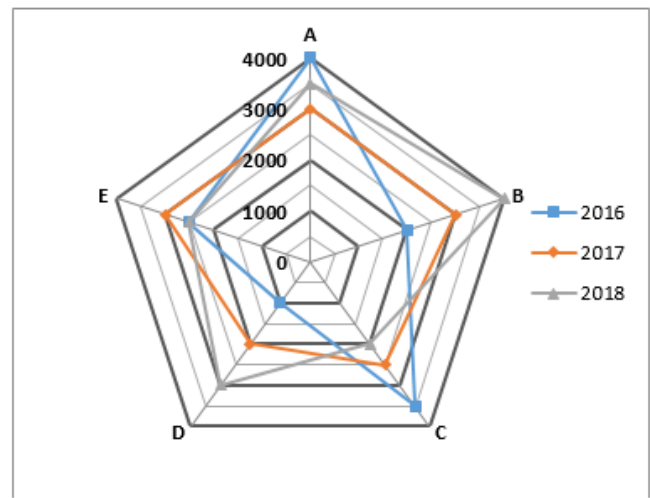
- (a) 40%
- (b) 60%
- (c) 50%
- (d) 70%
- (e) 80%

Q40. If passing marks for each subject is 40% of 120, then what is the difference between passing marks and marks scored by Student B in Computer?

- (a) 30
- (b) 32
- (c) 36
- (d) 40
- (e) 45

Directions (41-45): Study the radar chart given below and answer the following questions.

Radar chart shows the number of buses manufactured by 5 different companies (A, B, C, D & E) in 2016, 2017 & 2018.



Note – Buses manufactured by a company in any year = (Sold + unsold) buses of that company in that year.

Q41. If company – B sold 80%, 90% and 80% buses manufactured by it in 2016, 2017 & 2018 respectively, then find average number of unsold buses of company – B in 2016, 2017 & 2018.

- (a) 400
- (b) 900
- (c) 500
- (d) 200
- (e) 100

Q42. Buses manufactured by company – A in 2016 & 2018 together are what percent more or less than buses manufactured by company – D in 2017 & 2018 together?

- (a) 50%
- (b) 90%
- (c) 70%
- (d) 60%
- (e) 80%

Q43. If buses sold by company – B and company – E in 2016 are 75% and 80% respectively, then find ratio of buses sold by company – B & E together in 2016 to unsold buses of company – B & E together in 2016.

- (a) 11 : 5
- (b) 5 : 1
- (c) 8 : 5
- (d) 7 : 2
- (e) None of the above.

Q44. Buses manufactured in 2018 by all these 5 companies together are approximately what percent of buses manufactured in 2016 by all these 5 companies together?

- (a) 104%
- (b) 108%
- (c) 102%
- (d) 118%
- (e) 115%

Q45. Average number of buses manufactured by company – B, C & D in 2017 are how much more or less than buses manufactured by company – D & E together in 2016?

- (a) 1500
- (b) 2500
- (c) 2000
- (d) 1000
- (e) 500

Directions (46-50): Find the missing term in the following number series questions.

Q46. 6, 7, 16, 51, 208, ?

- (a) 970
- (b) 845
- (c) 1085
- (d) 985
- (e) 1045

Q47. 2000, ?, 2164, 2308, 2504, 2760

- (a) 2049
- (b) 2036
- (c) 2064
- (d) 2100
- (e) 2081

Q48. 800, 770, 728, 672, ?, 510,

- (a) 616
- (b) 600
- (c) 580
- (d) 624
- (e) 560

Q49. 500, 548, 620, ?, 836, 980

- (a) 716
- (b) 736
- (c) 756
- (d) 696
- (e) 746

Q50. 10, 20, 60, 300, ?, 23100

- (a) 1650
- (b) 1500
- (c) 1800
- (d) 2100
- (e) 2400

Q51. 3, 8, 18, 33, 53, ?

- (a) 72
- (b) 80
- (c) 76
- (d) 78
- (e) 73

Q52. 9, 64, 25, 216, ?, 512

- (a) 49
- (b) 343
- (c) 81
- (d) 100
- (e) 121

Q53. 12, 36, 80, 164, 328, ?

- (a) 648
- (b) 664
- (c) 660
- (d) 656
- (e) 652

Q54. 15, 23, 30, 36, 41, ?

- (a) 48
- (b) 52
- (c) 49
- (d) 45
- (e) 51

Q55. 7, 14, 28, ?, 112, 224

- (a) 56
- (b) 64
- (c) 58
- (d) 62
- (e) 60

Q56. 250, 375, 591, ?, 1446, 2175

- (a) 954
- (b) 934
- (c) 914
- (d) 894
- (e) 974

Q57. 30, 90, 360, 1800, 10800, ?

- (a) 54000
- (b) 73200
- (c) 72800
- (d) 75600
- (e) 64800

Q58. 39600, 6600, ?, 330, 110, 55

- (a) 1320
- (b) 1650
- (c) 1100
- (d) 1160
- (e) 1280

Q59. 200, ?, 236, 284, 380, 572

- (a) 228
- (b) 208
- (c) 224
- (d) 220
- (e) 212

Q60. 8000, 7100, 6475, 6075, ?, 5750

- (a) 5975
- (b) 5850
- (c) 5675
- (d) 5875
- (e) 5775

Directions (61-70): What should come in place of question mark (?) in the following questions?

Q61. $1528 + 525 \div 25 - 840 = 510 + ?$

- (a) 199
- (b) 299
- (c) 159
- (d) 189
- (e) 165

Q62. $\sqrt{1225} \div 7 + 18.5 \times 16 - 18\% \text{ of } 10800 = ? - 1800$

- (a) 259
- (b) 169
- (c) 157
- (d) 129
- (e) 141

Q63. $65\% \text{ of } 180 + ?\% \text{ of } 210 = 80\% \text{ of } 225$

- (a) 45
- (b) 30
- (c) 40
- (d) 50
- (e) 25

Q64. $\sqrt{1500 + ? + 17.5 \times 8 - 5\% \text{ of } 20} = 42$

- (a) 145
- (b) 115
- (c) 120
- (d) 135
- (e) 125

Q65. $\frac{13}{17} \text{ of } \frac{8}{156} \text{ of } 153 = ?$

- (a) 8
- (b) 12
- (c) 7
- (d) 6
- (e) 4

Q66. $? + \frac{5}{2} + 1\frac{1}{4} = 1\frac{1}{8} + 2\frac{5}{2} + 7\frac{1}{4}$

- (a) $\frac{71}{8}$
- (b) $\frac{73}{8}$
- (c) $\frac{65}{8}$
- (d) $\frac{63}{4}$
- (e) $7\frac{1}{8}$

Q67. $\frac{1725}{25} + \frac{3025}{121} \div \frac{312}{1248} = (?)^2$

- (a) 17
- (b) 23
- (c) 15
- (d) 13
- (e) 11

Q68. $(180 \times 170) \div 16 \div ? = 153 \times 6 + 612$

- (a) 1.75
- (b) 1.20
- (c) 1.25
- (d) 1.45
- (e) 1.80

Q69. $(24)^2 - (12)^2 - (10)^2 + (?)^2 = 207 \times 3$

- (a) 19
- (b) 37
- (c) 13
- (d) 23
- (e) 17

Q70. $(1285 + 215 - 720) \div (1620 + 1200 - 69.5 \times 40) = ?$

- (a) 23.5
- (b) 13
- (c) 21.5
- (d) 17.5
- (e) 19.5

Q71. In an alloy A, Aluminum and Nickel are present in the ratio 4 : 3 and in alloy B, the same element are in the ratio 3 : 5. If these two alloys be mixed to form a new alloy in which same elements are in the ratio 1 : 1, then find the ratio of alloy A and alloy B in the new alloy ?

- (a) 6 : 7
- (b) 7 : 4
- (c) 4 : 7
- (d) 7 : 6
- (e) 4 : 3

Q72. The average wt. of boys in school is 60kg while average wt. of girls is 55 kg. The average wt. of both boys and girls is 58kg. Find the number girls in school if number of boys is 720.

- (a) 480
- (b) 720
- (c) 240
- (d) 360
- (e) 600

Q73. If 21 is added in a number, the result becomes $116\frac{2}{3}\%$ of itself. Find the new number?

- (a) 126
- (b) 147
- (c) 130
- (d) 136
- (e) 125

Q74. The amount invested by P and Q is in the ratio 2 : 3 and that invested by P and R is 5 : 7. If the profit earned by P at the end of year is Rs. 76 less than that earned by R. Find the profit earned by Q.

- (a) Rs. 95
- (b) Rs. 228
- (c) Rs. 285
- (d) Rs. 380
- (e) Rs. 114

Q75. Average weight of A, B and C is 93 kg.. If another man D joins the group whose weight is 81 kg then new average of the four people will be equal to: -

- (a) 65 kg
- (b) 67 kg
- (c) 86 kg
- (d) 90 kg
- (e) 96 kg

Q76. An article when sold at $\frac{4}{5}$ of its original selling price, gives a profit of 20%. Find the profit % when the same article is sold at its actual selling price.

- (a) 15 %
- (b) 20 %
- (c) 25%
- (d) 22 %
- (e) None of these

Q77. An amount of Rs. 20000 when invested at R% simple interest for 2 years becomes Rs. 24000. What will it become in 3 years if invested at $(R+2)\%$? (in Rs.)

- (a) 27200
- (b) 26300
- (c) 25200
- (d) 27400
- (e) 28100

Q78. Karan purchased an article marked up by 50% at a discount of 20% but later he found that the article was having a defect so he decided to return it but the shopkeeper returned him only 90% of what he had paid. What is profit/loss (in %) of the shopkeeper in the whole transaction?

- (a) 8
- (b) 10
- (c) 12
- (d) 15
- (e) None of these

Q79. A sum of Rs. x was invested at 10% simple interest for 3 years. If the same sum was invested at 4% more for same period, then it would have fetched Rs. 120 more. Find the value of $5x$. (in Rs.)

- (a) 5000
- (b) 4800
- (c) 3600
- (d) 5500
- (e) 4000

Q80. A sum of Rs. P was invested at 10% for 2 years at simple interest. If the same sum was invested at 20% for ' x ' years, it would have fetched Rs. 200 more. Find ' x ' if $Px = 5000$. (value of x is given in months)

- (a) 12
- (b) 18
- (c) 15
- (d) Cannot be determined
- (e) None of these

Q81. A sum of Rs 1400 becomes Rs 2408 in 8 yrs at simple interest, then find the rate of interest for last 4 yrs, if the interest rate for 1st 4 yrs is 12% per annum ?

- (a) 8 %
- (b) 10 %
- (c) 6 %
- (d) 4 %
- (e) None of these

Q82. Cost price of 2 bags is in ratio 4:5 and these bags are sold at 10% profit & 20% profit respectively. Find overall profit percentage in entire transaction.

- (a) $15\frac{5}{9}\%$
- (b) $12\frac{5}{9}\%$
- (c) $18\frac{5}{9}\%$
- (d) $14\frac{5}{9}\%$
- (e) Cannot be determined

Q83. Rs. 12000 becomes Rs. 15000 in 18 months at a certain rate of interest at simple interest. Find amount if Rs. 5000 invested at same rate for 30 months at simple interest.

- (a) Rs. 7883.33
- (b) Rs. 7083.33
- (c) Rs. 7279.80
- (d) Rs. 7173.33
- (e) None of these

Q84. The interest earned on an amount after 2 yrs at 10 % per annum compounded yearly is Rs 672. Find the interest earned on same amount after 4 yr at 14 % per annum at simple interest ?

- (a) Rs 1792
- (b) Rs 1864
- (c) Rs 1912
- (d) Rs 1754
- (e) Rs 1720

Q85. If the shopkeeper marked the price of an item 60% above the cost price and then gives two successive discount of 10% and 15% respectively, then find the profit percentage of the shopkeeper on selling the item?

- (a) 25.4%
- (b) 22.4%
- (c) 20%
- (d) 28.5%
- (e) 32%

Q86. Johny calculates his profit at cost price while Jini at selling price. If cost price is same for all and everyone calculate their profit as 10%. Find ratio of selling price.

- (a) 100:111
- (b) 10:11
- (c) 10:101
- (d) 99:100
- (e) Cannot be determined

Q87. An amount doubles in 5 years at simple interest. In what time will it become 12 times of itself at same rate? (in years)

- (a) 30
- (b) 50
- (c) 55
- (d) 36
- (e) None of these

Q88. Aakash sells an article at a profit of 10%. Had he bought it for 5% less and sold it for 120 rs more then he would have gained 20% profit. What is the cost price of the article ?

- (a) Rs 2500
- (b) Rs 4000
- (c) Rs 3000
- (d) Rs 3500
- (e) Rs 2000

Q89. An amount of 4000 rs is invested at 20% per annum for 2 yrs at compound interest compounding half-yearly, then find the total interest amount received after 2 yrs ?

- (a) Rs 1856.4
- (b) Rs 1812.4
- (c) Rs 1882.4
- (d) Rs 1912.4
- (e) None of these

Q90. Anu bought a purse at a discount of 20% which was marked at 30% higher than cost price. A customer gets 10% extra discount on purchase of more than two purse. If Anu purchased 3 such purses, find profit or loss percent of shopkeeper.

- (a) 4% loss
- (b) 4% profit
- (c) 6.4% profit
- (d) 6.4% loss
- (e) None of these

Directions (91-95): What will come in the place of the question mark (?) in the following number series?

Q91. 5, 7, 25, 131, ?, 8335

- (a) 845
- (b) 940
- (c) 965
- (d) 925
- (e) 825

Q92. 81, 86, 94, 111, 135, ?

- (a) 172
- (b) 176
- (c) 192
- (d) 182
- (e) 186

Q93. 61, 32, 55, 36, 53, ?

- (a) 50
- (b) 42
- (c) 40
- (d) 65
- (e) 48

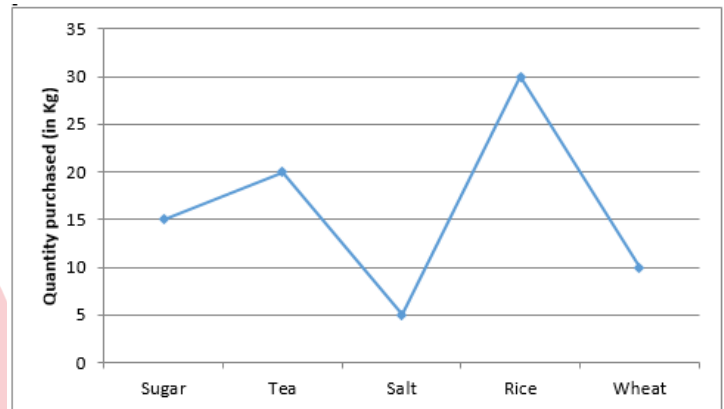
Q94. 5, ?, 11.5, 35, 164, 1360

- (a) 7.5
- (b) 11
- (c) 8.5
- (d) 9
- (e) 5.5

Q95. 1656, 549, 180, ?, 16

- (a) 63
- (b) 73
- (c) 85
- (d) 57
- (e) 67

Directions (96-101): Line graph shows the quantity of 5 different products purchased by a person.



Q96. If sum of per kg cost of sugar and that of salt is Rs.90 and the ratio between per kg cost of sugar and that of salt is 3 : 2. Then, find the difference of total cost of sugar and total cost of salt ?

- (a) Rs. 530
- (b) Rs. 630
- (c) Rs. 670
- (d) Rs. 750
- (e) Rs. 720

Q97. If total cost of Tea is Rs. 5000 and that of wheat is Rs. 450. Then cost per kg of wheat is what percent more or less than cost per kg of Tea ?

- (a) 72%
- (b) 86%
- (c) 82%
- (d) 78%
- (e) 92%

Q98. One kg of rice and one kg of sugar is purchased in Rs 450. If cost per kg of rice decreases by $33\frac{1}{3}\%$ & cost per kg of Sugar increases by $33\frac{1}{3}\%$ then total cost per kg of rice and sugar is Rs. 500. Then find cost per kg of sugar ?

- (a) Rs. 300
- (b) Rs. 350
- (c) Rs. 200
- (d) Rs. 250
- (e) Rs. 450

Q99. If cost per kg of Tea & per kg of Rice is Rs. 220 & Rs. 50 respectively then find the ratio of total cost of tea to total cost of rice ?

- (a) 53 : 15
- (b) 44 : 17
- (c) 41 : 17
- (d) 47 : 15
- (e) 44 : 15

Q100. Total quantity of sugar and salt purchased together is what percent more/less than the total quantity of Tea & wheat purchased together ?

- (a) $48\frac{2}{3}\%$
- (b) $37\frac{1}{3}\%$
- (c) $66\frac{2}{3}\%$
- (d) $33\frac{1}{3}\%$
- (e) $42\frac{2}{3}\%$

Q101. If cost per kg of sugar, salt & rice is Rs. 10, Rs. 30 & Rs. 20 respectively then find the sum of difference of total cost of sugar and that of salt and difference of total cost of sugar and that of rice?

- (a) Rs. 500
- (b) Rs. 475
- (c) Rs. 400
- (d) Rs. 450
- (e) Rs. 435

Q102. A train crosses a tunnel which is half of its length with a speed of 144 km/hr. in $\frac{1}{2}$ min, then find the time in which it will cross another train which is double of its length and standing on platform in opposite direction with 60% of its initial speed ?

- (a) 120 sec.
- (b) 90 sec.
- (c) 150 sec.
- (d) 100 sec.
- (e) 180 sec.

Q103. Arun sells his watch at a profit of $33\frac{1}{3}\%$ & his purse at a loss of $16\frac{2}{3}\%$ & on whole he gains Rs. 50. And if he sells his watch at a loss of $16\frac{2}{3}\%$ & purse at profit of $33\frac{1}{3}\%$ then there will be no profit no loss. Find cost price of the watch ?

- (a) Rs. 300
- (b) Rs. 100
- (c) Rs. 250
- (d) Rs. 200
- (e) Rs. 150

Q104. A boat can cover an equal distance in upstream and in downstream in 6 hours. If speed of boat in still water is 200% more than the speed of stream then find the time taken to cover the same distance in upstream.

- (a) 5 hours
- (b) 3 hours
- (c) 4.5 hours
- (d) 3.5 hours
- (e) 4 hours

Q105. Prabhat invested Rs. 15600 on SI at rate of R% p.a. for 3 years & the interest obtained is Rs. 7020. If he invested the same amount at rate of (R+5)% p.a. for two years on CI then find the interest obtained by Prabhat?

- (a) Rs. 6864
- (b) Rs. 6250
- (c) Rs. 6748
- (d) Rs. 6468
- (e) Rs. 6648



Directions (106-110): Given table shows the data of students of a class related to results of Half-yearly and Annual examination. Study the data carefully and answer the questions.

	Section A	Section B	Section C
Students who have failed in both	10	15	20
Students who have passed Half-yearly	30	30	35
Students who have passed Annual	40	25	30
Students who have passed in both	20	20	25

Q106. How many students are there in Section B of class?

- (a) 50
- (b) 60
- (c) 90
- (d) 100
- (e) 110

Q107. Students passed in both exams in all sections are what percent more/less than students failed in both exams in all sections?

- (a) $44\frac{10}{13}\%$
- (b) $30\frac{10}{13}\%$
- (c) 40%
- (d) $44\frac{4}{9}\%$
- (e) $40\frac{4}{9}\%$

Q108. what is average of students who passed in only one examination in all sections together?

- (a) 39.67
- (b) 40.67
- (c) 41.67
- (d) 42.67
- (e) 43.67

Q109. Students failed in both exams in section C are what percent of total students in section C? (in %)

- (a) 30
- (b) 20
- (c) 18
- (d) 25
- (e) 33.33

Q110. Which sections have equal number of students?

- (a) section A & B
- (b) section A & C
- (c) section B & C
- (d) all have same no.of students
- (e) none

Directions (111-115): Following table gives the detail of items sold by two different stores i.e Store A and Store B and among them percentage of numbers of items purchased by females are given.

Days	Store A		Store B	
	Total items	% of items purchased by females	Total items	% of items purchased by females
Monday	230	30%	320	30%
Tuesday	280	45%	440	65%
Wednesday	335	40%	270	80%
Thursday	360	60%	380	25%
Friday	420	65%	275	40%

Q111. Items purchased by females from store A on Wednesday and Thursday together is how much percent more/less than the total items purchased by males from store B on Thursday and Friday together ?

- (a) 20%
- (b) $22\frac{2}{9}\%$
- (c) $16\frac{2}{3}\%$
- (d) $14\frac{2}{7}\%$
- (e) 25%

Q112. Find the respective ratio between total number of items purchased by males from store A on Tuesday and Wednesday together to the total numbers of items purchased by females from store B on Thursday and Friday together ?

- (a) 45:73
- (b) 41:71
- (c) 73:41
- (d) 71:41
- (e) 37:71

Q113. Find the total number of items purchased by males from store B on all the given days together?

- (a) 936
- (b) 832
- (c) 912
- (d) 852
- (e) 882

Q114. Total Items purchased on Thursday and Friday together of store A is what percentage of total items purchased on Wednesday and Thursday together of store B ?

- (a) 125%
- (b) 100%
- (c) 120%
- (d) 140%
- (e) 80%

Q115. If total items purchased from store A and Store B on Saturday are 20% more and 30% more respectively than the total items sold by store A and B on Wednesday, then find the total number of items purchased from Store A and Store B together on Saturday?

- (a) 828
- (b) 753
- (c) 783
- (d) 807
- (e) 823

Directions (116-120): Following table DI gives the detail of magazines printed by five different companies and distributed among different distributors and answer the following question accordingly.

Name of printing magazines company	Total number of copies printed	% of printed magazines distributed among distributors	Number of magazines received by each distributor.
P	5600	80%	64
Q	2400	60%	40
R	3800	75%	95
S	2500	68%	85
T	4500	70%	75

Note:- magazines were equally distributed among the distributors of respective printing companies.

Q116. What is the average no. of magazines distributed by companies Q, R and T among their respective distributors?

- (a) 2720
- (b) 2640
- (c) 2480
- (d) 2960
- (e) 3120

Q117. Find the total numbers of distributors of magazines of company Q and T together?

- (a) 62
- (b) 72
- (c) 84
- (d) 78
- (e) 64

Q118. Find the respective ratio of the total number of magazines distributed among the distributors of company R to that of the total no. of magazines distributed among distributors of company T?

- (a) 21:19
- (b) 19:21
- (c) 17:21
- (d) 21:17
- (e) 17:23

Q119. Find the average number of books distributed among the distributors by all the five companies together?

- (a) 2784
- (b) 2664
- (c) 2680
- (d) 2756
- (e) 2724

Q120. Find the difference between total no. of distributors of magazines sold by companies P and Q together to the total no. of distributors of magazines sold by companies R and T together?

- (a) 38
- (b) 34
- (c) 36
- (d) 42
- (e) 40

Directions (121-135): What will come in the place of the question mark (?) in the following number series?

Q121. 2, 6, 42, 142, 338, ?

- (a) 665
- (b) 632
- (c) 631
- (d) 682
- (e) 662

Q122. 87, 89, 86, 91, 84, ?

- (a) 95
- (b) 96
- (c) 97
- (d) 98
- (e) 90

Q123. 77, 81, 72, 88, 63, ?

- (a) 98
- (b) 99
- (c) 101
- (d) 105
- (e) 97

Q124. 3120, 624, 156, ?, 26

- (a) 84
- (b) 100
- (c) 102
- (d) 52
- (e) 150

Q125. 7, 21, 105, 735, ?

- (a) 6235
- (b) 3256
- (c) 6755
- (d) 6515
- (e) 6615

Q126. 1511, 302, 75, 24, ?, 5

- (a) 12
- (b) 10
- (c) 8
- (d) 15
- (e) 9

Q127. 7, 10, 18, 42, 90, ?

- (a) 150
- (b) 160
- (c) 170
- (d) 210
- (e) 240

Q128. 48, 24, 72, 18, 90, ?

- (a) 9
- (b) 12
- (c) 21
- (d) 18
- (e) 15

Q129. 9, 6, 9, 24, 108, ?

- (a) 888
- (b) 864
- (c) 872
- (d) 878
- (e) 882

Q130. 15, 30, 50, 80, 130, ?

- (a) 200
- (b) 210
- (c) 220
- (d) 230
- (e) 240

Q131. 4, 18, 48, ?, 180, 294

- (a) 96
- (b) 120
- (c) 100
- (d) 90
- (e) 115

Q132. 2, 4, 12, 60, ?, 4620

- (a) 300
- (b) 380
- (c) 480
- (d) 660
- (e) 420

Q133. 2, 3, 5, 8, 13, ?

- (a) 21
- (b) 19
- (c) 17
- (d) 24
- (e) 26

Q134. 150, 395, ?, 900, 1160, 1425

- (a) 650
- (b) 625
- (c) 676
- (d) 645
- (e) 680

Q135. 100, 96, 87, 71, ?, 10

- (a) 35
- (b) 21
- (c) 46
- (d) 52
- (e) 25

Directions (136-140): What will come in place of the question mark (?) in the following number series?**Q136.** 16, 20, 28, 44, ?

- (a) 82
- (b) 76
- (c) 60
- (d) 52
- (e) 96

Q137. 2, 11, 36, 85, ?, 287

- (a) 163
- (b) 166
- (c) 170
- (d) 185
- (e) 206

Q138. 8, 6, 14, 40, ?

- (a) 151
- (b) 148
- (c) 80
- (d) 162
- (e) 98

Q139. 3, 83, 152, 208, 249, ?

- (a) 280
- (b) 320
- (c) 265
- (d) 351
- (e) 273

Q140. 2, 14, 70, ?, 420

- (a) 190
- (b) 320
- (c) 210
- (d) 200
- (e) 315

Directions (141-145): Study the paragraph carefully and answer the following questions.

Adda247 publications sold three books i.e. **Quant, English and reasoning** on three different stores i.e. **A, B and C.**

Quant, reasoning and English book are sold at 20% discount by store A, C and B respectively. **Quant, reasoning and English** book are sold at 15% discount by store C, B and A respectively. Discount percent given on Quant book by store B is half of discount percent given on reasoning book by store C. M.R.P. for each book is same at every store.

Q141. Store A sold reasoning book at Rs. 880, find M.R.P of the book if discount given by store A on reasoning book is 20% more than discount given by store B on quant book?

- (a) Rs. 1200
- (b) Rs. 1000
- (c) Rs. 960
- (d) Rs. 1240
- (e) None of these.

Q142. If total selling price of Quant book for store A and B together is Rs. 510. Find M.R.P. of Quant for store B?

- (a) Rs.240
- (b) Rs.270
- (c) Rs.280
- (d) Rs.300
- (e) Rs.600

Q143. If market price of a reasoning book was 50% more than cost price of the book for store C. Find profit percent on selling a reasoning book by store C?

- (a) 20%
- (b) 15%
- (c) 25%
- (d) 10%
- (e) 12.5%

Q144. What is the ratio of average discount given on quant book by store A, reasoning book by store C and English book by store B to market price of a book?

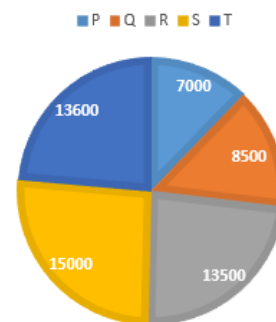
- (a) 5:4
- (b) 2:3
- (c) 3:2
- (d) 1:5
- (e) 4:5

Q145. If an English book is sold at Rs. 170 by store A, the find selling price of reasoning book for store C?

- (a) Rs. 160
- (b) Rs. 170
- (c) Rs. 135
- (d) Rs. 105
- (e) None of these.

Directions (146-150): Pie chart given below shows no. of non-defective article manufactured by five different firms i.e. P, Q, R, S and T. Read the data carefully and answer the following questions. (total article manufactured by any firm = defective + non-defective article)

NO. OF NON-DEFECTIVE ARTICLE



Q146. No. of non-defective article manufactured by firm Q is what percent of non-defective article manufactured by firm T?

- (a) 60%
- (b) 62.5%
- (c) 37.5%
- (d) 50%
- (e) 72.5%

Q147. If ratio of non-defective to defective article manufactured by firm S is 75:2, then find ratio of non-defective article manufactured by firm T to defective article manufactured by firm S?

- (a) 37:1
- (b) 34:1
- (c) 33:1
- (d) 24:1
- (e) 38:1

Q148. Average no. of non-defective article manufactured by firm Q and R is what percent of total no. of non-defective article manufactured by firm S?

- (a) $72\frac{2}{3}\%$
- (b) $66\frac{2}{3}\%$
- (c) $33\frac{1}{3}\%$
- (d) $73\frac{1}{3}\%$
- (e) None of these.

Q149. If no. of defective article manufactured by firm P and R are 30% and $30\frac{10}{13}\%$ respectively of total no. of article manufactured by each of these firm, then find defective article manufactured by firm P is what percent more/ less than that of firm R?

- (a) 20%
- (b) 15%
- (c) 50%
- (d) 25%
- (e) 75%

Q150. What is the ratio of non-defective article manufactured by firm Q and R together to that of P and S together?

- (a) 2:1
- (b) 1:1
- (c) 1:2
- (d) 1:3
- (e) 3:1

Q151. 4 men & 3 children completes a project for Rs. 600 in 3 days. If a man completes same project in 15 days. Find daily wage of a man.

- (a) Rs 36
- (b) Rs.40
- (c) Rs.44
- (d) Rs.48
- (e) Rs.42

Q152. Difference between 50% of y and 10% of x is 170 whereas difference between 40% of x and 30% of y is zero. Find the sum of 'x' and 'y' ?

- (a) 770
- (b) 630
- (c) 600
- (d) 700
- (e) 560

Q153. If ratio of time periods of investment of P and Q is 4:5, profit at the end of the year is 75000 and P's share is Rs 15000, then what is the ratio of Q's and P's investment?

- (a) 5:16
- (b) 6:7
- (c) 12:13
- (d) 16:5
- (e) 8:5

Q154. Average of 8 consecutive odd numbers is 10. What will be the average of smallest 4 numbers out of 8 numbers?

- (a) 7
- (b) 8
- (c) 6
- (d) 4
- (e) 5

Q155. The work done by 5 boys in 20 days can be done by 10 men in 8 days. 4 Men & 4 boys undertook a work to complete in 3 days for Rs. 540. Find the amount earned by boys for their whole contribution.

- (a) Rs 236
- (b) Rs.240
- (c) Rs.244
- (d) Rs.248
- (e) Rs.242

Q156. Sanjay scored 56% marks and passed an exam by 10 marks while Rohit scored 48% marks but failed by 6 marks. What is the pass percentage?

- (a) 52.5%
- (b) 51.5%
- (c) 52%
- (d) 51%
- (e) None of these

Q157. Four books are to be distributed among seven students. If no student gets more than one book, then the number of ways possible to do it is?

- (a) 180
- (b) 240
- (c) 260
- (d) 210
- (e) 220

Q158. In a basket, there are 8 red ball and 6 green ball. If 2 balls are taken out from the basket, then find what is the probability of both ball being either red or green?

- (a) 43/91
- (b) 47/91
- (c) 51/91
- (d) 43/87
- (e) 43/82

Q159. The parallel sides of a trapezium are 4 cm & 10 cm respectively while non-parallel sides are equal to side of square of area 25 sq.cm. find area of trapezium. (in sq.cm.)

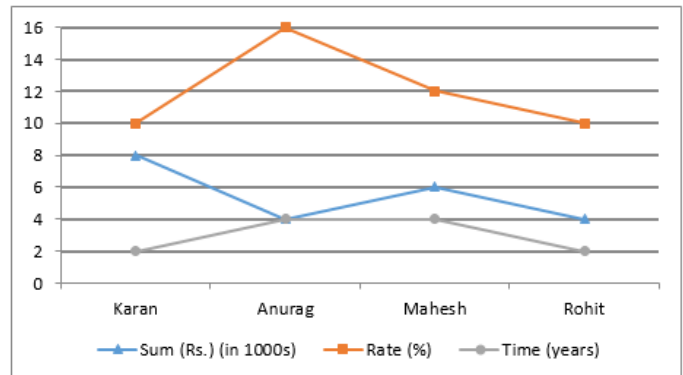
- (a) 50
- (b) 42
- (c) 56
- (d) 28
- (e) 14

Q160. The ratio of area of square to that of rectangle of length 10 cm is 4 : 5. If breadth of rectangle is same as side of square. Find length of diagonal of square.

- (a) $9\sqrt{2}$ cm
- (b) $10\sqrt{2}$ cm
- (c) $6\sqrt{2}$ cm
- (d) $4\sqrt{2}$ cm
- (e) $8\sqrt{2}$ cm

Directions (161-165): Given line graph shows the sum invested, rate of interest and time period of investment by 4 people. Study the data carefully and answer the questions.

(NOTE: all invested their sum at simple interest)



Q161. How much will Rohit receive after completion of his investment period? (in Rs.)

- (a) 5200
- (b) 6800
- (c) 4800
- (d) 4400
- (e) 4600

Q162. Interest amount received by Mahesh is what percent more than interest amount received by Karan?

- (a) 85%
- (b) 60%
- (c) 75%
- (d) 70%
- (e) 80%

Q163. What is total amount received as interest by Anurag & Rohit together? (in Rs.)

- (a) None of these
- (b) 3150
- (c) 3200
- (d) 3360
- (e) 3420

Q164. If Karan had invested same sum at compound interest at same rate of interest for same period. How much more would he earn?

- (a) Rs 80
- (b) Rs 90
- (c) Rs 70
- (d) Rs 60
- (e) None of these

Q165. Who among the four had received the highest amount as interest?

- (a) Karan
- (b) Anurag
- (c) Both Anurag & Mahesh
- (d) Rohit
- (e) Mahesh

Directions (166-170): Following Table chart gives the details of 5 students of a particular school in five different subjects in the annual exam.

	Moths(150)	Physics(150)	Chemistry(150)	English(100)	Computer(100)
Amit	70	66	58	54	80
Aakash	50	64	78	65	75
Siddharth	48	72	88	70	86
Lokesh	80	76	84	75	85
Ritesh	76	82	64	72	94

Note:-the data provided in the table is percentage of marks out of total marks in that particular subject.

Q166. Total marks scored by lokesh in physics, chemistry and maths together is how much more/less than total marks scored by Amit in the same three subjects together?

- (a) 75
- (b) 65
- (c) 69
- (d) 55
- (e) 80

Q167. Find the overall percentage of marks scored by Siddharth in the exam?

- (a) 75%
- (b) 82%
- (c) 68%
- (d) 72%
- (e) 80%

Q168. Find the difference of total marks scored by Ritesh in all the given subject together and total marks scored by Aakash in all the given subjects together?

- (a) 71
- (b) 84
- (c) 78
- (d) 82
- (e) 93

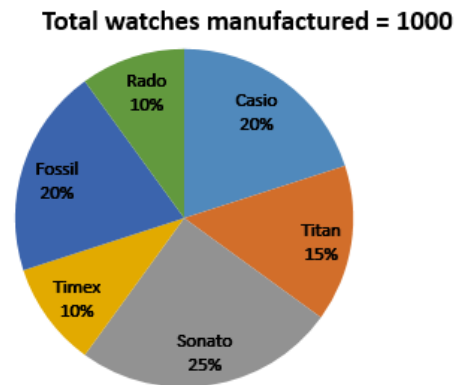
Q169. Find the average marks scored in physics subject by all the given five students together?

- (a) 105
- (b) 110
- (c) 108
- (d) 100
- (e) 98

Q170. Total marks scored by Aakash, Siddharth and Lokesh in English is what percentage of the total marks scored by Amit, Aakash and lokesh in maths?

- (a) 75%
- (b) 70%
- (c) 65%
- (d) 68%
- (e) 80%

Directions (171-175): Given pie graph shows percentage distribution of watches manufactured by a company in 2018. Study the graph carefully & answer the questions.



Q171. What is average of watches manufactured by Casio, Titan & Sonata together?

- (a) 500
- (b) 600
- (c) 400
- (d) 200
- (e) 300

Q172. What is ratio of watches manufactured by Timex & Sonata together to that by Fossil & Casio together?

- (a) 5:4
- (b) 8:7
- (c) 7:8
- (d) 7:4
- (e) 5:8

Q173. Watches manufactured of Sonata are what percent more/less than watches manufactured of Rado?

- (a) 130%
- (b) 150%
- (c) 200%
- (d) 170%
- (e) 100%

Q174. If next year, Titan watch production increases by 10% while that of Timex decreases by 10%. What is difference in manufacturing of both in next year?

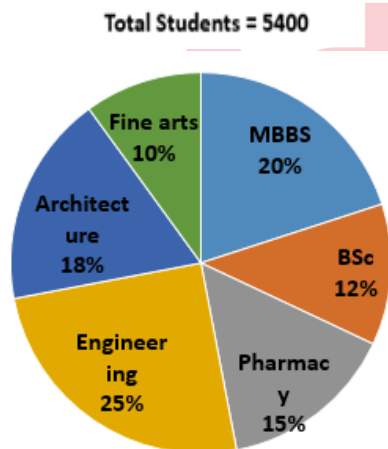
- (a) 80
- (b) 90
- (c) 100
- (d) 65
- (e) 75

Q175. No. of watches manufactured of how many brands is more than average no. of watches manufactured?

- (a) 4
- (b) 3
- (c) 1
- (d) 2
- (e) 5

Directions (176-180): Study the charts given below carefully and answer the following questions.

Pie chart shows the distribution of total students of a university in different departments as shown below.



Q176. Find the ratio of total number of student from engineering and architecture department together to total students from the pharmacy and BSc department together?

- (a) 27:43
- (b) 27:47
- (c) 43:27
- (d) 47:27
- (e) 37:42

Q177. If the ratio of males to females in pharmacy and finearts departments are 1:2 and 3:2 respectively, then find the total number of females in pharmacy and finearts together?

- (a) 784
- (b) 712
- (c) 736
- (d) 756
- (e) 812

Q178. Find the central angle of the total students of architecture department of the university?

- (a) 64.8°
- (b) 75.6°
- (c) 72°
- (d) 43.2°
- (e) 68.4°

Q179. Number of students who failed in the final semester exam from MBBS and Finearts dept are 20% and 15% respectively of their respective dept, then find the total number of student who passed the semester from MBBS and Finearts dept ?

- (a) 1345
- (b) 1323
- (c) 1368
- (d) 1420
- (e) 1456

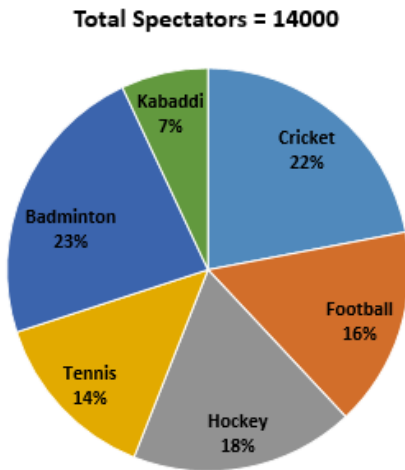
Q180. Total students from engineering and pharmacy department together is approximately what percentage of the total students from MBBS and Fine arts dept?

- (a) 122%
- (b) 148%
- (c) 126%
- (d) 143%
- (e) 134%



Directions (181-185): Study the charts given below carefully and answer the following questions.

Pie chart shows the percentage distribution of total Spectators of a particular city loving different sports as shown below.



Q181. Total spectators of Badminton and kabaddi together is what percentage of total spectators of cricket and hockey together ?

- (a) 70%
- (b) 75%
- (c) 80%
- (d) 65%
- (e) 60%

Q182. Find the ratio of total spectators of Football and tennis together to the total spectators of Cricket?

- (a) 17:12
- (b) 11:15
- (c) 15:11
- (d) 12:17
- (e) 13:18

Q183. Find the central angle of total spectators of badminton and tennis together?

- (a) 79.2°
- (b) 136.8°
- (c) 115.2°
- (d) 126°
- (e) 133.2°

Q184. Out of total hockey spectators, male and female lovers are in the ratio 9: 6 respectively, then find difference between male and female spectators of hockey?

- (a) 524
- (b) 484
- (c) 336
- (d) 504
- (e) 472

Q185. Total spectators of cricket and football together is how much more/less than total spectators of badminton and tennis together?

- (a) 160
- (b) 140
- (c) 180
- (d) 200
- (e) None of these

Directions (186-190): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and answer the following questions.

Q186. I. $2x^2 - 17x + 36 = 0$
II. $2y^2 - 19y + 45 = 0$

- (a) $x > y$
- (b) $x < y$
- (c) $x \geq y$
- (d) $x \leq y$
- (e) $x = y$ or no relation.

Q187. I. $x^2 - 25x + 154 = 0$
II. $y^2 - 28y + 195 = 0$

- (a) $x > y$
- (b) $x < y$
- (c) $x \geq y$
- (d) $x \leq y$
- (e) $x = y$ or no relation.

Q188. I. $\frac{10}{x} - \frac{24}{x^2} = 1$
II. $\frac{5}{y} - \frac{6}{y^2} = 1$

- (a) $x > y$
- (b) $x < y$
- (c) $x \geq y$
- (d) $x \leq y$
- (e) $x = y$ or no relation.

Q189. I. $3x^2 - 10x - 8 = 0$
II. $2y^2 - 23y + 60 = 0$

- (a) $x > y$
- (b) $x < y$
- (c) $x \geq y$
- (d) $x \leq y$
- (e) $x = y$ or no relation.

Q190. I. $12x - 16y = -16$
II. $17y - 13x = 12$

- (a) $x > y$
- (b) $x < y$
- (c) $x \geq y$
- (d) $x \leq y$
- (e) $x = y$ or no relation.

Directions (191-195): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer

Q191. I. $4x^2 + 4x + 1 = 0$
II. $9y^2 + 6y + 1 = 0$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q192. I. $(x - 2)^2 - 4 = 0$
II. $y^2 + 1 - 2y = 0$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q193. I. $3x + 2y = 5$
II. $4x + 6y = 10$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q194. I. $x^2 - 4x - 21 = 0$
II. $y^2 - 16y + 63 = 0$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q195. I. $2x = 3y - 1$
II. $x + y = 7$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Directions (196-200): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer

Q196. I. $4x^2 + 4x - 3 = 0$
II. $4y^2 - 8y + 3 = 0$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q197. I. $11x - 13y + 48 = 0$
II. $13y + 11x = 290$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q198. I. $2x + 3xy = 207$
II. $15x = \frac{945}{y}$

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y

Q199.

I. $x^2 - 14x + 33 = 0$

II. $y^2 - 15y + 44 = 0$

(a) if $x > y$

(b) if $x \geq y$

(c) if $x < y$

(d) if $x \leq y$

(e) if $x = y$ or no relation can be established between x and y

Q200.

I. $8x^2 + 22x - 21 = 0$

II. $18y^2 + 27y - 35 = 0$

(a) if $x > y$

(b) if $x \geq y$

(c) if $x < y$

(d) if $x \leq y$

(e) if $x = y$ or no relation can be established between x and y

Solutions

S1. Ans.(d)

Sol.

$$? \simeq (\sqrt{625} + \sqrt{1600}) \div \left(\frac{560 \times 30}{100} - \frac{250 \times 62}{100} \right)$$

$$? \simeq \frac{(25+40)}{(168-155)} \simeq \frac{65}{13} = 5$$

S2. Ans.(b)

Sol.

$$? \simeq \frac{729 \times 81 \times 108}{27 \times 36} = 6561$$

S3. Ans.(e)

Sol.

$$?^2 + (32)^2 - \sqrt{144} \times 8^2 \simeq 73\% \text{ of } 400$$

$$?^2 + 1024 - 12 \times 64 = 292$$

$$?^2 \simeq 292 - 1024 + 768$$

$$?^2 \simeq 36$$

$$? \simeq 6$$

S4. Ans.(a)

Sol.

$$48\% \text{ of } 350 + 60\% \text{ of } 280 \simeq 97\% \text{ of } 300 + ?\% \text{ of } 150$$

$$\Rightarrow ? \times 1.5 \simeq 168 + 168 - 291$$

$$? \simeq \frac{45}{1.5} = 30$$

S5. Ans.(e)

Sol.

$$2^? \simeq \frac{128 \times 512 \times 16}{2048 \times 32} \simeq 16$$

$$2^? \simeq 2^4$$

$$\Rightarrow ? = 4$$

S6. Ans.(a)

Sol.

$$\frac{60}{100} \times 880 + \frac{80}{100} \times 590 = ?$$

$$? = 1000$$

S7. Ans.(b)

Sol.

$$14 \times 6 \div 42 = ? \div 6$$

$$? = 12$$

S8. Ans.(c)

Sol.

$$\frac{900}{45} \times 4 \times 70 = ?$$

$$? = 5600$$

S9. Ans.(a)

Sol.

$$\frac{4444}{100} \times \frac{10}{44} \times \frac{10}{101} = (?)^2 \times \frac{1}{100}$$

$$(?)^2 = (10)^2$$

$$? = 10$$

S10. Ans.(e)

Sol.

$$5 \times 12 + 9 + 4 + 11 = ?$$

$$? = 84$$

S11. Ans.(a)

Sol.

$$2000 \div 50 \times 3 + 5 = (?)^3$$

$$? = 5$$

S12. Ans.(c)

Sol.

$$\frac{6}{10} \times 320 + \frac{1}{10} \times 1600 = -177 + (?)^2$$

$$(?)^2 = 529$$

$$? = 23$$

S13. Ans.(d)

Sol.

$$1.101 + 11.01 + \frac{101.01}{1.01} = ?$$

$$\Rightarrow ? = 1 + 11 + 101$$

$$? = 113$$

S14. Ans.(a)

Sol.

$$45 \times 3 - 35 = ? \times 10$$

$$? = \frac{100}{10}$$

$$? = 10$$

S15. Ans.(e)

Sol.

$$\frac{1391}{26} \times 2 + 256 = ?$$

$$? = 363$$

S16. Ans.(d)

Sol.

Let votes received by BJP, INC & SP be $11x$, $3x$ & $5x$ respectively.
Atq,
 $11x - 5x = 24000$
 $x = 4000$
Required sum = $3x + 5x$
 $= 8 \times 4000$
 $= 32000$

S17. Ans.(a)

Sol.

$$\text{Total valid votes in D} = 60000 \times \frac{75}{100}$$

$$= 45000$$

$$\text{Valid votes received by BJP in D} = 45000 \times \frac{70}{100} = 31500$$

$$\text{Valid votes received by INC} = 45000 - 31500$$

$$= 13500$$

$$\text{Required difference} = 31500 - 13500$$

$$= 18000$$

S18. Ans.(d)

Sol.

Let valid votes received by AAP in E be x
So, valid votes received by INC in E = $x + 15000$
Then,
Votes received by BJP in E = $(x + 15000) + 15000$
 $= x + 30000$
Atq,
 $x + x + 15000 + x + 30000 = 75000 \times \frac{80}{100}$
 $3x + 45000 = 60000$
 $3x = 15000$
 $x = 5000$
So, required number of valid votes = $x + 30000$
 $= 35000$

S19. Ans.(a)

Sol.

Votes received by INC in B = $90000 \times \frac{40}{100} = 36000$
Invalid votes received by INC in B = $90000 \times \frac{40}{100} \times \frac{1}{3} = 12000$
So, total valid votes received by INC in B = $36000 - 12000 = 24000$

S20. Ans.(c)

Sol.

Valid votes received by INC in C = $40000 \times \frac{90}{100} \times \frac{2}{12}$
 $= 6000$
Valid votes received by SP in C = $40000 \times \frac{90}{100} \times \frac{3}{12}$
 $= 9000$
Invalid votes received by INC in C = $40000 \times \frac{10}{100} \times \frac{3}{10}$
 $= 1200$
Invalid votes received by SP in C = $40000 \times \frac{10}{100} \times \frac{4}{10}$
 $= 1600$
Required difference = $(9000 + 1600) - (6000 + 1200)$
 $= 10600 - 7200$
 $= 3400$

S21. Ans(d)

Sol.

Average number of students of school A across all the years
 $= \frac{280+340+370+240+210}{5}$
 $= 288$
Average number of students of school B across all the years
 $= \frac{350+310+260+340+250}{5}$
 $= 302$
Required difference = $302 - 288$
 $= 14$

S22. Ans(a)

Sol.

Total number of students of school A in 2011 and 2012 together = 280 + 340 = 620

Total number of students of school C in 2013 and 2014 together = 280 + 380 = 660

Required ratio = $\frac{620}{660} = 31 : 33$

S23. Ans.(d)

Sol.

total number of students in 2016 in all the schools together

$$= 210 \times \frac{110}{100} + 250 \times \frac{120}{100} + 260 \times \frac{115}{100} = 231 + 300 + 299 = 830$$

S24. Ans(a)

Sol.

Total students of all the three schools together in 2013 = 370 + 260 + 280 = 910

Total students of school B in 2011 and 2015 together = 350 + 250 = 600

Required percentage = $\frac{910 - 600}{600} \times 100 = 51.66\%$
= 52% (approx.)

S25. Ans(d)

Sol.

Total number of students from all the schools in 2011 and 2013 together = (280 + 350 + 220) + (370 + 260 + 280) = 1760

Total number of students from all the schools in 2014 and 2015 together = (240 + 340 + 380) + (210 + 250 + 260) = 1680

Required difference = 1760 - 1680 = 80

S26. Ans(b)

Sol.

Total number of students who have opted for MBBS in all the colleges together

$$= 700 \times \frac{40}{100} + 800 \times \frac{25}{100} + 400 \times \frac{32}{100} + 900 \times \frac{36}{100} = 932$$

Required average = $\frac{932}{4} = 233$

S27. Ans(d)

Sol.

Total no. of students who have opted for both Engg. and MBBS together in college Q = $800 \times \frac{40}{100} + 800 \times \frac{25}{100} = 520$

Total no. of students who have opted for both Engg. and MBBS together in college R = $400 \times \frac{44}{100} + 400 \times \frac{32}{100} = 304$

Required ratio = $\frac{520}{304} = 65 : 38$

S28. Ans(a)

Sol.

Total number of students who have opted for MBBS in college P = $700 \times \frac{40}{100} = 280$

Total number of students who have opted for the engg. in college Q = $800 \times \frac{40}{100} = 320$

Required percentage = $\frac{280}{320} \times 100 = 87.5\%$

S29. Ans(c)

Sol.

Total number of students who have opted for engg. stream in college R

Total number of students who have opted for engg. stream in college R = $400 \times \frac{44}{100} = 176$

Total number of students who have opted for engg. stream in college P = $700 \times \frac{32}{100} = 224$

Required ratio = $\frac{176}{224} = 11 : 14$

S30. Ans(b)

Sol.

Total student in pharmacy in college P = $700 \times \frac{28}{100} = 196$

Total student in pharmacy in college Q = $800 \times \frac{35}{100} = 280$

Total student in pharmacy in college R = $400 \times \frac{24}{100} = 96$

Total student in pharmacy in college S = $900 \times \frac{22}{100} = 198$

So, maximum no. of student is in college Q in pharmacy

Total student in engg. in college P = $700 \times \frac{32}{100} = 224$

Total student in engg. in college Q = $800 \times \frac{40}{100} = 320$

Total student in engg. in college R = $400 \times \frac{44}{100} = 176$

Total student in engg. in college S = $900 \times \frac{42}{100} = 378$

So, Maximum no. of student is in college S in engg.

Therefore, required pair is Q & S

S31. Ans(b)

Sol.

Number of Honda city car sold in Ahmedabad = 320

Number of Innova car sold in Surat = 480

Required percentage = $\frac{320}{480} \times 100 = 66\frac{2}{3}\%$

S32. Ans(d)

Sol.

Total creta car sold in Delhi and Mohali together = 420 + 280 = 700

Total innova car sold in Kolkata and Ahmedabad together = 320 + 500 = 820

Required ratio = $\frac{700}{820} = 35 : 41$

S33. Ans(a)

Sol.

total number of cars sold in Kolkata=320+360+460=1140

S34. Ans(e)

Sol.

Total number of Honda city cars sold in delhi=540

Total number of creta cars sold in surat=450

Required difference=540 -450=90

S35. Ans(c)

Sol.

Total number of Honda city car sold in all the cities together =460+320+340+540+420=2080

Average= $\frac{2080}{5}=416$

S36. Ans.(d)

Sol.

required difference = average marks scored by Student A -
Average marks scored by Student B

$$\therefore \frac{70+90+60+55}{4} - \frac{50+80+75+65}{4} = \frac{5}{4} = 1.25$$

S37. Ans(c)

Sol.

marks obtained by student A in Math and Computer together =70 + 90 = 160

marks obtained by student B in Science and English together=75+65 =140

required ratio = 160:140= 8:7

S38. Ans(b)

Sol.

Overall percentage marks of Student B = $\frac{50+80+75+65}{400} \times 100 = 67.5$

S39. Ans.(c)

Sol.

Marks Scored by Student A in Math =70

Marks Scored by Student B in Science and English =75+65=140

Required % = $\frac{70}{140} \times 100 = 50\%$

S40. Ans.(b)

Sol.

A.T.Q, passing marks = $\frac{40}{100} \times 120 = 48$

\therefore required difference = 80 - 48 = 32

S41. Ans. (c)

Sol.

Unsold buses of company - B in 2016, 2017 & 2018 together

$$= \left(2000 \times \frac{20}{100}\right) + \left(3000 \times \frac{10}{100}\right) + \left(4000 \times \frac{20}{100}\right)$$

$$= 400 + 300 + 800$$

$$= 1500$$

$$\text{Required average} = \frac{1500}{3}$$

$$= 500$$

S42. Ans.(a)

Sol.

Buses manufactured by company - A in 2016 & 2018 together = 4000 + 3500 = 7500

Buses manufactured by company - D in 2017 & 2018 together = 2000 + 3000 = 5000

$$\text{Required \%} = \frac{7500-5000}{5000} \times 100$$

$$= 50\%$$

S43. Ans.(d)

Sol.

Buses sold by company - B & E together in 2016 = $\left(2000 \times \frac{75}{100}\right) + \left(2500 \times \frac{80}{100}\right)$

$$= 1500 + 2000$$

$$= 3500$$

Unsold buses of company - B & E together in 2016 = (2000 + 2500) - (3500)

$$= 1000$$

$$\text{Required ratio} = \frac{3500}{1000}$$

$$= 7 : 2$$

S44. Ans.(e)

Sol.

Buses manufactured in 2018 by all these 5 companies together

$$= 3500 + 4000 + 2000 + 3000 + 2500$$

$$= 15000$$

Buses manufactured in 2016 by all these 5 companies together

$$= 4000 + 2000 + 3500 + 1000 + 2500$$

$$= 13000$$

$$\text{Required \%} = \frac{15000}{13000} \times 100$$

$$= 115.38\%$$

$$= 115\% \text{ (approx.)}$$

S45. Ans.(d)

Sol.

Average number of buses manufactured by company - B, C & D in 2017

$$= \frac{3000+2500+2000}{3}$$

$$= 2500$$

Buses manufactured by company - D & E together in 2016 = 1000 + 2500

$$= 3500$$

Required difference = 3500 - 2500

$$= 1000$$

S46. Ans(e)**Sol.**

Pattern is

$$6 \times 1 + 1 = 7$$

$$7 \times 2 + 2 = 16$$

$$16 \times 3 + 3 = 51$$

$$51 \times 4 + 4 = 208$$

$$208 \times 5 + 5 = 1045$$

S47. Ans.(c)**Sol.**

Pattern is

$$2000 + (8)^2 = 2064$$

$$2064 + (10)^2 = 2164$$

$$2164 + (12)^2 = 2308$$

$$2308 + (14)^2 = 2504$$

$$2504 + (16)^2 = 2760$$

S48. Ans.(b)**Sol.**

Pattern is

$$800 - (5 \times 6) = 770$$

$$770 - (6 \times 7) = 728$$

$$728 - (7 \times 8) = 672$$

$$672 - (8 \times 9) = 600$$

$$600 - (9 \times 10) = 510$$

S49. Ans(a)**Sol.**

Pattern is

$$500 + 48 = 548$$

$$548 + 72 = 620$$

$$620 + 96 = 716$$

$$716 + 120 = 836$$

$$836 + 144 = 980$$

S50. Ans(d)**Sol.**

Pattern is

$$10 \times 2 = 20$$

$$20 \times 3 = 60$$

$$60 \times 5 = 300$$

$$300 \times 7 = 2100$$

$$2100 \times 11 = 23100$$

S51. Ans(d)**Sol.**

Pattern is

$$3 + (5 \times 1) = 8$$

$$8 + (5 \times 2) = 18$$

$$18 + (5 \times 3) = 33$$

$$33 + (5 \times 4) = 53$$

$$53 + (5 \times 5) = 78$$

S52. Ans(a)**Sol.**

Pattern is

$$3^2 = 9$$

$$4^3 = 64$$

$$5^2 = 25$$

$$6^3 = 216$$

$$7^2 = 49$$

$$8^3 = 512$$

S53. Ans(e)**Sol.**

Pattern is

$$12 \times 2 + 12 = 36$$

$$36 \times 2 + 8 = 80$$

$$80 \times 2 + 4 = 164$$

$$164 \times 2 + 0 = 328$$

$$328 \times 2 - 4 = 652$$

S54. Ans(d)**Sol.**

$$15 + 8 = 23$$

$$23 + 7 = 30$$

$$30 + 6 = 36$$

$$36 + 5 = 41$$

$$41 + 4 = 45$$

S55. Ans(a)**Sol.**

Pattern is

$$7 \times 2 = 14$$

$$14 \times 2 = 28$$

$$28 \times 2 = 56$$

$$56 \times 2 = 112$$

$$112 \times 2 = 224$$

S56. Ans.(b)

Sol.

Pattern followed is

$$250 + (5)^3 = 375$$

$$375 + (6)^3 = 591$$

$$591 + (7)^3 = 934$$

$$934 + (8)^3 = 1446$$

$$1446 + (9)^3 = 2175$$

S57. Ans.(d)

Sol.

Pattern followed is

$$30 \times 3 = 90$$

$$90 \times 4 = 360$$

$$360 \times 5 = 1800$$

$$1800 \times 6 = 10800$$

$$10800 \times 7 = 75600$$

S58. Ans.(a)

Sol.

Pattern followed is

$$39600 \div 6 = 6600$$

$$6600 \div 5 = 1320$$

$$1320 \div 4 = 330$$

$$330 \div 3 = 110$$

$$110 \div 2 = 55$$

S59. Ans.(e)

Sol.

Pattern followed is

$$200 + (12 \times 1) = 212$$

$$212 + (12 \times 2) = 236$$

$$236 + (12 \times 4) = 284$$

$$284 + (12 \times 8) = 380$$

$$380 + (12 \times 16) = 572$$

S60. Ans.(b)

Sol.

Pattern followed is

$$8000 - (30)^2 = 7100$$

$$7100 - (25)^2 = 6475$$

$$6475 - (20)^2 = 6075$$

$$6075 - (15)^2 = 5850$$

$$5850 - (10)^2 = 5750$$

S61. Ans.(a)

Sol.

$$1528 + 21 - 840 - 510 = ?$$

$$? = 1549 - 1350$$

$$? = 199$$

S62. Ans.(c)

Sol.

$$\frac{35}{7} + 296 - 1944 = ? - 1800$$

$$301 + 1800 - 1944 = ?$$

$$? = 157.$$

S63. Ans.(b)

Sol.

$$\frac{65}{100} \times 180 + \frac{?}{100} \times 210 = \frac{80}{100} \times 225$$

$$\frac{?}{100} \times 210 = 180 - 117$$

$$? = \frac{63 \times 100}{210} = 30$$

S64. Ans.(e)

Sol.

$$1500 + 140 - 1 + ? = 1764$$

$$? = 1764 - 1639$$

$$? = 125$$

S65. Ans.(d)

Sol.

$$\frac{13}{17} \times \frac{8}{156} \times 153 = ?$$

$$? = 6$$

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S66. Ans.(b)

Sol.

$$? + 2\frac{1}{2} + 1\frac{1}{4} = 1\frac{1}{8} + 4\frac{1}{2} + 7\frac{1}{4}$$

$$? = (1 + 4 + 7 - 2 - 1) + \left[\frac{1}{8} + \frac{1}{2} + \frac{1}{4} - \frac{1}{2} - \frac{1}{4}\right]$$

$$? = 9\frac{1}{8} = \frac{73}{8}$$

S67. Ans.(d)

Sol.

$$69 + (5)^2 \times (2)^2 = (?)^2$$

$$169 = (?)^2$$

$$(?)^2 = (13)^2$$

$$\therefore ? = 13$$

S68. Ans.(c)

Sol.

$$\frac{180 \times 170}{16 \times ?} = 918 + 612$$

$$? = \frac{180 \times 170}{16 \times 1530}$$

$$? = 1.25$$

S69. Ans.(e)

Sol.

$$(?)^2 = 621 + 144 + 100 - 576$$

$$(?)^2 = 289 = (17)^2$$

$$? = 17$$

S70. Ans.(e)

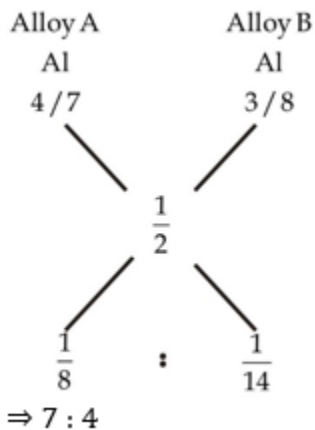
Sol.

$$? = (780) \div (2820 - 2780)$$

$$? = 780 \div 40 = 19.5$$

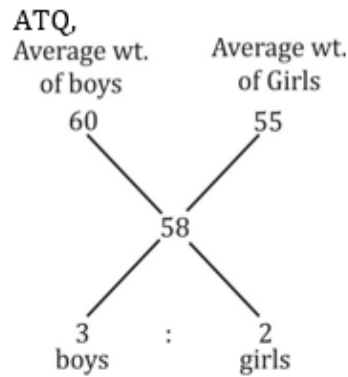
S71. Ans.(b)

Sol.



S72. Ans.(a)

Sol.



Let no. of boys = $3x$ and no. of girls = $2x$

Number of boys = $3x = 720$

$$\Rightarrow x = 240$$

No. of girls = $2x = 480$

S73. Ans. (b)

Sol.

$$116 \frac{2}{3}\% = \frac{7}{6}$$

$$\Rightarrow 1 \rightarrow 21$$

So, 7 \rightarrow 147

New no. is 147.

S74. Ans.(c)

Sol.

P : Q = 2 : 3

P : R = 5 : 7

$$\Rightarrow Q : P : R = 15 : 10 : 14$$

Let profit earned by Q be $15x$, by P be $10x$ and by R be $14x$.

ATQ,

$$4x = 76$$

$$x = 19$$

Profit earned by Q = $15x = 15 \times 19 = \text{Rs } 285$

S75. Ans.(d)

Sol.

$$A + B + C = 93 \times 3$$

$$A + B + C = 279$$

$$A + B + C + D = 279 + 81 = 360$$

Required average = $\frac{360}{4} = 90 \text{ kg}$

S76. Ans.(e)

Sol.

let actual SP be Rs. x

New selling price = Rs. $\frac{4x}{5}$

Let CP be Rs. y

$$\text{ATQ, } \frac{\frac{4x}{5} - y}{y} = \frac{20}{100} = \frac{1}{5}$$

$$\frac{4x}{5} - y = \frac{y}{5}$$

$$\frac{y}{x} = \frac{2}{3}$$

When article sold at actual selling price,

$$\text{Profit \%} = \frac{x-y}{y} \times 100 = \frac{\frac{3y}{2} - y}{y} \times 100 = 50\%$$

S77. Ans.(a)

Sol.

$$\text{SI} = 24000 - 20000 = \text{Rs. } 4000$$

$$4000 = \frac{20000 \times 2 \times R}{100}$$

$$R = 10\%$$

$$\text{Required amount} = 20000 + \frac{20000 \times 12 \times 3}{100} = \text{Rs. } 27200$$

S78. Ans.(c)

Sol.

let CP be Rs. x

$$\text{MP} = \frac{150}{100} \times x = \text{Rs. } 1.5x$$

$$\text{SP} = \frac{80}{100} \times 1.5x = \text{Rs. } 1.2x$$

$$\text{Amount returned to Karan} = \frac{90}{100} \times 1.2x = \text{Rs. } 1.08x$$

$$\text{Profit \% (shopkeeper)} = \frac{1.2x - 1.08x}{x} \times 100 = 12\%$$

S79. Ans.(a)

Sol.

ATQ,

$$\frac{x \times 14 \times 3}{100} - \frac{x \times 10 \times 3}{100} = 120$$

$$\frac{(42-30)x}{100} = 120$$

$$x = \text{Rs. } 1000$$

$$\text{Required answer} = 5x = 5 \times 1000 = \text{Rs. } 5000$$

S80. Ans.(c)

Sol.

$$\text{ATQ, } \frac{P \times 10 \times 2}{100} + 200 = \frac{P \times 20 \times x}{100}$$

$$\frac{20Px}{100} - 200 = \frac{20P}{100}$$

$$\frac{20P}{100} = \frac{20 \times 5000}{100} - 200 = 800$$

$$P = \text{Rs. } 4000$$

$$x = \frac{5000}{4000} = \frac{5}{4} \text{ years or 15 months}$$

S81. Ans.(c)

Sol.

Total interest received in 8 yrs = 2408 - 1400 = Rs 1008

$$\text{Interest for 1st 4 years} = \frac{1400 \times 4 \times 12}{100} = \text{Rs } 672$$

So, interest for last 4 years = 1008 - 672 = Rs 336

$$\text{Interest rate for last 4 years} = \frac{336 \times 100}{1400 \times 4} = 6\%$$

S82. Ans.(a)

Sol.

let CP of bags be Rs. 4x & Rs. 5x respectively.

$$\text{Total SP of bags} = \frac{110}{100} \times 4x + \frac{120}{100} \times 5x = 4.4x + 6x = \text{Rs. } 10.4x$$

$$\text{Required Profit \%} = \frac{10.4x - 9x}{9x} \times 100 = 15\frac{5}{9}\%$$

S83. Ans(b)

Sol.

let rate of interest be R%

$$\text{SI} = 15000 - 12000 = \text{Rs. } 3000$$

$$3000 = \frac{12000 \times R \times 18}{12 \times 100}$$

$$R = \frac{100}{6}\%$$

$$\text{Required amount} = 5000 + \frac{5000 \times 100 \times 30}{100 \times 6 \times 12} = \text{Rs. } 7083.33$$

S84. Ans(a)

Sol.

Overall rate for 2 yrs at the rate of 10% compounded yearly

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

According to the question,

$$21\% = 672$$

$$100\% = \frac{672}{21} \times 100 = 3200 \text{ rs}$$

$$\text{Simple interest} = \frac{3200 \times 14 \times 4}{100}$$

$$= \text{Rs } 1792$$

S85. Ans(b)

Sol.

Let cost price of the item be $100x$

$$\text{Marked price of the item} = 100x + 100x \times \frac{60}{100}$$

$$= 160x$$

$$\text{Selling price of items after giving discounts} = 160x \times \frac{90}{100} \times \frac{85}{100}$$

$$= 122.4x$$

$$\text{Profit percentage} = \frac{122.4x - 100x}{100x} \times 100$$

$$= 22.4\%$$

S86. Ans(d)

Sol.

let CP be Rs. x

$$\text{SP (Johny)} = \frac{110}{100} \times x = \text{Rs. } 1.1x$$

Since Jini calculate profit at SP

$$\frac{\text{SP} - x}{\text{SP}} \times 100 = 10$$

$$10 \text{ SP} - 10x = \text{SP}$$

$$\text{SP} = \text{Rs. } \frac{10}{9}x$$

$$\text{Required ratio} = 1.1x : \frac{10x}{9} = 99 : 100$$

S87. Ans(c)

Sol.

let rate of interest be $R\%$ & principal be Rs. P

$$\text{SI} = 2P - P = \text{Rs. } P$$

$$P = \frac{P \times R \times 5}{100}$$

$$R = 20\%$$

To become 12 times, $\text{SI} = 12P - P = \text{Rs. } 11P$

$$11P = \frac{P \times 20 \times T}{100} \text{ where } T \text{ is time period in years}$$

$$T = 55 \text{ years}$$

S88. Ans(c)

Sol.

Let original cost price of the article be Rs. $100x$.

$$\text{So, original selling price of the article} = 100x \times \frac{110}{100}$$

$$= \text{Rs. } 110x$$

$$\text{Now, new cost price of the article} = 100x \times \frac{95}{100}$$

$$= \text{Rs. } 95x$$

And, new selling price of the article = Rs. $(110x + 120)$

ATQ,

$$95x \times \frac{120}{100} = 110x + 120$$

$$\Rightarrow 4x = 120$$

$$x = 30$$

So, cost price of the article = $100x = \text{Rs. } 3000$

S89. Ans(a)

Sol.

Let R be effective interest and P be principal amount

$$\text{So, } R = \frac{20}{2} = 10\%$$

And, period of time = $2 \times 2 = 4$ (as it is compounded half-yearly)

$$\text{C.I.} = P \left(1 + \frac{R}{100}\right)^4 - P$$

$$= 4000 \left(1 + \frac{10}{100}\right)^4 - 4000$$

$$= \text{Rs } 1856.4$$

S90. Ans(d)

Sol.

let cost price of purse be Rs $100x$

$$\text{MP} = \frac{130}{100} \times 100x = \text{Rs. } 130x$$

$$\text{SP} = \frac{80}{100} \times 130x = \text{Rs. } 104x$$

$$\text{CP (3 purses)} = 3 \times 100x = \text{Rs. } 300x$$

$$\text{SP (3 purses)} = 3 \times 104x = \text{Rs. } 312x$$

But shopkeeper offered 10% extra discount

$$\text{Actual SP (3 purses)} = \frac{90}{100} \times 312x = \text{Rs. } 280.8x$$

$$\text{Loss \%} = \frac{300x - 280.8x}{300x} \times 100 = 6.4\%$$

S91. Ans.(d)

Sol.

Pattern is

$$5 \times 1 + 2 = 7$$

$$7 \times 3 + 4 = 25$$

$$25 \times 5 + 6 = 131$$

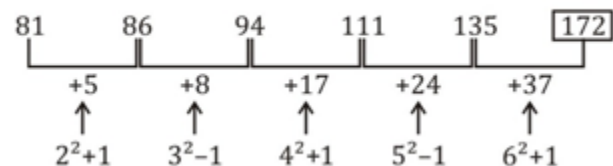
$$131 \times 7 + 8 = 925$$

$$925 \times 9 + 10 = 8335$$

S92. Ans.(a)

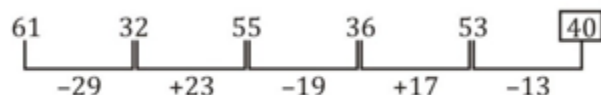
Sol.

Pattern is



S93. Ans.(c)

Sol.



S94. Ans.(e)

Sol.

Pattern is

$$5 \times 0.5 + 3 = 5.5$$

$$5.5 \times 1 + 6 = 11.5$$

$$11.5 \times 2 + 12 = 35$$

$$35 \times 4 + 24 = 164$$

$$164 \times 8 + 48 = 1360$$

S95. Ans.(d)

Sol.

Pattern is

$$\frac{1656}{3} - 3 = 549$$

$$\frac{549}{3} - 3 = 180$$

$$\frac{180}{3} - 3 = 57$$

$$\frac{57}{3} - 3 = 16.$$

S96. Ans.(b)

Sol.

$$\text{Cost per kg of sugar} = 90 \times \frac{3}{5} = \text{Rs. } 54$$

$$\text{Cost per kg of salt} = 90 \times \frac{2}{5} = \text{Rs. } 36$$

$$\begin{aligned} \text{Required difference} &= 15 \times 54 - 5 \times 36 \\ &= 810 - 180 \\ &= \text{Rs. } 630 \end{aligned}$$

S97. Ans.(c)

Sol.

$$\text{Cost per kg of tea} = \frac{5000}{20} = \text{Rs. } 250$$

$$\text{Cost per kg of wheat} = \frac{450}{10} = \text{Rs. } 45$$

$$\text{Required percentage} = \frac{250-45}{250} \times 100 = 82\%$$

S98. Ans.(a)

Sol.

Let cost per kg of rice be Rs. x
& cost per kg of sugar be Rs. y

ATQ,

$$x + y = 450 \dots(i)$$

After change

$$x \times \frac{2}{3} + y \times \frac{4}{3} = 500$$

$$2x + 4y = 1500$$

$$x + 2y = 750 \dots(ii)$$

From (i) & (ii)

$$y = \text{Rs. } 300$$

S99. Ans.(e)

Sol.

$$\text{Required ratio} = \frac{20 \times 220}{30 \times 50} = 44 : 15$$

S100. Ans.(d)

Sol.

$$\text{Required percentage} = \frac{(20+10)-(15+5)}{(20+10)} \times 100 = 33 \frac{1}{3} \%$$

S101. Ans.(d)

Sol.

$$\text{Required sum} = (15 \times 10 - 5 \times 30) + (30 \times 20 - 15 \times 10) = \text{Rs. } 450$$

S102. Ans.(d)

Sol.

Let length of train = $2L$ m

Length of tunnel = L m

ATQ,

$$3L = 144 \times \frac{5}{18} \times 30$$

$$L = 400 \text{ m}$$

Length of train = 800 m

$$\therefore \text{Length of other train} = 2 \times 800 = 1600 \text{ m}$$

$$60\% \text{ of speed} = 144 \times \frac{5}{18} \times \frac{60}{100} = 24 \text{ m/sec.}$$

$$\therefore (1600 + 800) = 24 \times \text{time}$$

$$\therefore \text{time} = 100 \text{ sec.}$$

S103. Ans.(d)

Sol.

Using Alligation,

<u>Watch</u>	<u>Purse</u>
$-\frac{50}{3} \%$	$+\frac{100}{3}$
\	
0	
/	
$+\frac{100}{3}$	$+\frac{50}{3}$

$$\text{Watch : Purse} = 2 : 1$$

Let cost price of watch be Rs. $2x$

Purse be Rs. x

ATQ,

$$\frac{100}{300} \times 2x - \frac{50}{300} \times x = 50$$

$$x = \text{Rs. } 100$$

$$\therefore \text{cost price of watch} = 2 \times 100 = \text{Rs. } 200$$

S104. Ans.(e)

Sol.

Let speed of stream be x km/h
 So, speed of boat = $3x$ km/h
 Speed of boat in upstream = $2x$ km/h
 Speed of boat in downstream = $4x$ km/h
 Ratio of speed of boat in downstream and upstream is 2 : 1
 So ratio of time taken = 1 : 2
 So time taken in upstream = $\frac{2}{(1+2)} \times 6 = 4$ hour

S105. Ans.(a)

Sol.

We know,

$$S.I. = \frac{P \times R \times \text{time}}{100} \quad \left[\begin{array}{l} P \rightarrow \text{Principal} \\ R \rightarrow \text{Rate} \end{array} \right]$$

$$7020 = \frac{15600 \times R \times 3}{100}$$

$$R = 15\%$$

$$R + 5 = 20\%$$

$$C.I. = 15600 \left[\left(1 + \frac{20}{100} \right)^2 - 1 \right]$$

$$C.I. = 15600 \left[\frac{36}{25} - 1 \right]$$

$$= 15600 \times \frac{11}{25} = \text{Rs. } 6864$$

S106. Ans(a)

Sol. Total students in a section = students failed in both + students passed in half yearly + students passes in annual - students passed in both
 total students in section B = $15+30+25-20=50$

S107. Ans(d)

Sol.

students failed in both exams in all sections = $10 + 15 + 20 = 45$
 Students passed in both exams in all sections = $20 + 20 + 25 = 65$
 Required % = $\frac{65-45}{45} \times 100 = 44\frac{4}{9}\%$

S108. Ans(c)

Sol.

students passed in only one examination in all sections = $(30 + 40 - 20) + (30 + 25 - 20) + (35 + 30 - 25) = 125$
 Required average = $\frac{125}{3} = 41.67$

S109. Ans(e)

Sol.

Total students in section C = $20 + 35 + 30 - 25 = 60$
 Required % = $\frac{20}{60} \times 100 = 33.33\%$

S110. Ans(b)

Sol.

students in section A = $10 + 30 + 40 - 20 = 60$
 Students in section B = $15 + 30 + 25 - 20 = 50$
 Students in section C = $20 + 35 + 30 - 25 = 60$
 Section A & C have same no. of students

S111. Ans(b)

Sol.

Items purchased by females from store A on Wednesday and Thursday together = $335 \times \frac{40}{100} + 360 \times \frac{60}{100} = 350$
 total items purchased by males from store B on Thursday and Friday together = $380 \times \frac{75}{100} + 275 \times \frac{60}{100} = 450$
 Required percentage = $\frac{450-350}{450} \times 100 = 22\frac{2}{9}\%$

S112. Ans(d)

Sol.

total number of items purchased by males from store A on Tuesday and Wednesday together = $280 \times \frac{55}{100} + 335 \times \frac{60}{100} = 355$
 total numbers of items purchased by females from store B on Thursday and Friday together = $380 \times \frac{25}{100} + 275 \times \frac{40}{100} = 205$
 Required ratio = $\frac{355}{205} = 71:41$

S113. Ans(e)

Sol.

Total number of items purchased by males from store B on all the given days together = $320 \times \frac{70}{100} + 440 \times \frac{35}{100} + 270 \times \frac{20}{100} + 380 \times \frac{75}{100} + 275 \times \frac{60}{100} = 224+154+54+285+165 = 882$

S114. Ans(c)

Sol.

Total Items purchased on Thursday and Friday together of store A = $360+420 = 780$
 Total items purchased on Wednesday and Thursday together of store B = $270+380 = 650$
 Required percentage = $\frac{780}{650} \times 100 = 120\%$

S115. Ans(b)

Sol.

$$\text{Total items purchased from store A on Saturday} = 335 \times \frac{120}{100} = 402$$

$$\text{Total items purchased from store B on Saturday} = 270 \times \frac{130}{100} = 351$$

$$\text{Total items purchased from Store A and Store B together on Saturday} = 402 + 351 = 753$$

S116. Ans(c)

Sol.

Total no. of magazines distributed by companies Q, R and T among their distributors

$$= 2400 \times \frac{60}{100} + 3800 \times \frac{75}{100} + 4500 \times \frac{70}{100}$$

$$= 1440 + 2850 + 3150$$

$$= 7440$$

$$\text{Required average} = \frac{7440}{3} = 2480$$

S117. Ans.(d)

Sol.

$$\text{Total number of distributors of magazines of company Q} = \frac{2400 \times \frac{60}{100}}{40} = 36$$

$$\text{Total number of distributors of magazines of company T} = \frac{4500 \times \frac{70}{100}}{75} = 42$$

$$\text{Total number of distributors of magazines of company Q and T together} = 36 + 42 = 78$$

S118. Ans.(b)

Sol.

$$\text{total number of magazines distributed among the distributors of company R} = 3800 \times \frac{75}{100} = 2850$$

$$\text{total number of magazines distributed among the distributors of company T} = 4500 \times \frac{70}{100} = 3150$$

$$\text{Required ratio} = \frac{2850}{3150} = 19 : 21$$

S119. Ans(e)

Sol.

$$\text{Total number of magazines distributed among the distributors of company P} = 5600 \times \frac{80}{100} = 4480$$

$$\text{Total number of magazines distributed among the distributors of company Q} = 2400 \times \frac{60}{100} = 1440$$

$$\text{Total number of magazines distributed among the distributors of company R} = 3800 \times \frac{75}{100} = 2850$$

$$\text{Total number of magazines distributed among the distributors of company S} = 2500 \times \frac{68}{100} = 1700$$

$$\text{Total number of magazines distributed among the distributors of company T} = 4500 \times \frac{70}{100} = 3150$$

$$\text{Required average} = \frac{4480 + 1440 + 2850 + 1700 + 3150}{5} = 2724$$

S120. Ans(b)

Sol.

Total no. of distributors of magazines sold by companies P and Q together

$$= \frac{5600 \times \frac{80}{100}}{64} + \frac{2400 \times \frac{60}{100}}{40} = 70 + 36 = 106$$

Total no. of distributors of magazines sold by companies R and T together

$$= \frac{3800 \times \frac{75}{100}}{95} + \frac{4500 \times \frac{70}{100}}{75} = 30 + 42 = 72$$

$$\text{Required difference} = 106 - 72 = 34$$

S121. Ans.(e)

Sol.

Series is

$$+2^2, +(2+4)^2, +(6+4)^2, +(10+4)^2$$

$$338 + 18^2 = 662$$

S122. Ans.(a)

Sol.

$$+2, -3, +5, -7, +11$$

$$\Rightarrow 84 + 11 = 95$$

S123. Ans.(b)

Sol.

$$+2^2, -3^2, +4^2, -5^2, +6^2 \dots$$

$$\Rightarrow 63 + 36 = 99$$

S124. Ans.(d)

Sol.

$$\times \frac{1}{5}, \times \frac{1}{4}, \times \frac{1}{3}, \times \frac{1}{2}$$

$$156 \times \frac{1}{3} = 52$$

S125. Ans.(e)

Sol.

Series is

$$\times 3, \times 5, \times 7, \times 9$$

$$\Rightarrow 735 \times 9 = 6615$$

S126. Ans.(b)

Sol.

$$(1511 - 1) \div 5 = 302$$

$$(302 - 2) \div 4 = 75$$

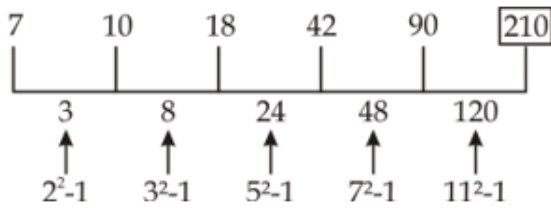
$$(75 - 3) \div 3 = 24$$

$$(24 - 4) \div 2 = 10$$

$$(10 - 5) \div 1 = 5$$

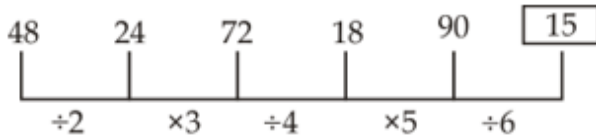
S127. Ans.(d)

Sol.



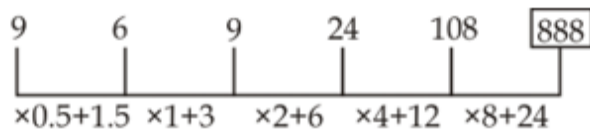
S128. Ans.(e)

Sol.



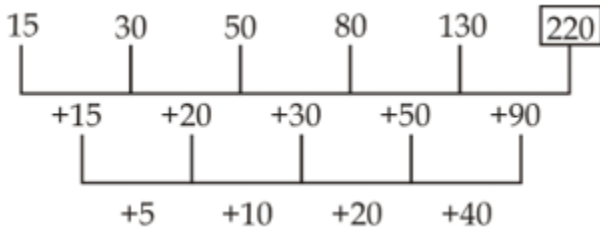
S129. Ans.(a)

Sol.



S130. Ans.(c)

Sol.



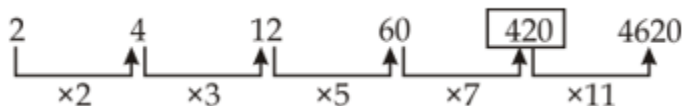
S131. Ans.(c)

Sol.



S132. Ans.(e)

Sol.



S133. Ans.(a)

Sol.

Fibonacci series

2 3 5 8 13 **21**

2 + 3 = 5

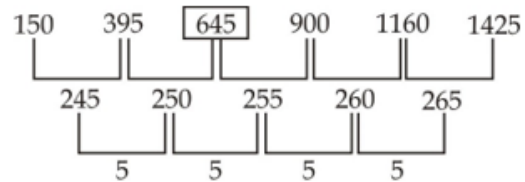
5 + 3 = 8

8 + 5 = 13

13 + 8 = **21**

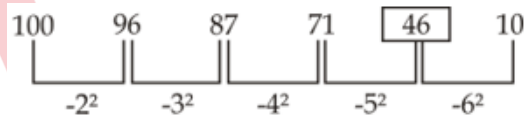
S134. Ans.(d)

Sol.



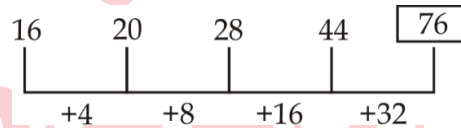
S135. Ans.(c)

Sol.



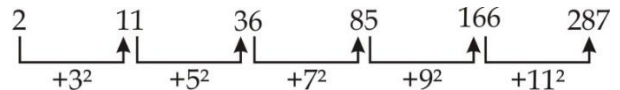
S136. Ans.(b)

Sol.



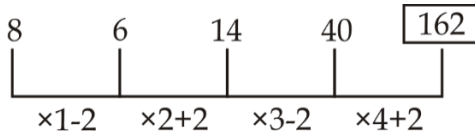
S137. Ans.(b)

Sol.



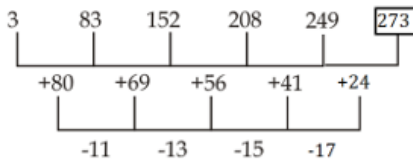
S138. Ans.(d)

Sol.



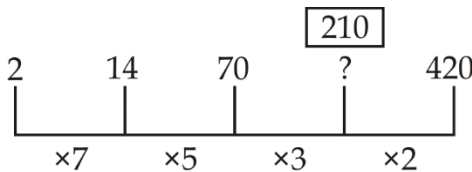
S139. Ans.(e)

Sol.



S140. Ans.(c)

Sol.



S141. Ans.(b)

Sol.

Discount percent given on Quant book by store B = $\frac{1}{2} \times 20\% = 10\%$

Table shows discount percent given by three different stores on three different books.

Store and book name	A	B	C
Quant	20%	10%	15%
Reasoning		15%	20%
English	15%	20%	

Discount given by store A on reasoning book = $10 \times \frac{120}{100} = 12\%$

M.R.P. of book = $880 \times \frac{100}{88} = \text{Rs. } 1000$

S142. Ans.(d)

Sol.

Discount percent given on Quant book by store B = $\frac{1}{2} \times 20\% = 10\%$

Table shows discount percent given by three different stores on three different books.

Store and book name	A	B	C
Quant	20%	10%	15%
Reasoning		15%	20%
English	15%	20%	

let M.R.P. of each book = Rs.100a

ATQ

$$100a \times \frac{80}{100} + 100a \times \frac{90}{100} = 510$$

$$170a = 510$$

$$a = 3$$

So, $100a = \text{Rs. } 300$

S143. Ans.(a)

Sol.

Discount percent given on Quant book by store B = $\frac{1}{2} \times 20\% = 10\%$

Table shows discount percent given by three different stores on three different books.

Store and book name	A	B	C
Quant	20%	10%	15%
Reasoning		15%	20%
English	15%	20%	

let cost price of a reasoning book for store C = Rs. 100y

Market price of a book for store C = $100y \times \frac{150}{100} = \text{Rs. } 150y$

Selling price of book for store C = $150y \times \frac{80}{100} = \text{Rs. } 120y$

Required profit percent = $\frac{120y - 100y}{100y} \times 100 = 20\%$

S144. Ans.(d)

Sol.

Discount percent given on Quant book by store B = $\frac{1}{2} \times 20\% = 10\%$

Table shows discount percent given by three different stores on three different books.

Store and book name	A	B	C
Quant	20%	10%	15%
Reasoning		15%	20%
English	15%	20%	

let M.R.P. of each book = Rs.100c

Required ratio = $\frac{1}{3} \times \left(100c \times \frac{20}{100} + 100c \times \frac{20}{100} + 100c \times \frac{20}{100} \right) : 100c$

$$= 20 : 100$$

$$= 1 : 5$$

S145. Ans.(a)

Sol.

Discount percent given on Quant book by store B = $\frac{1}{2} \times 20\% = 10\%$

Table shows discount percent given by three different stores on three different books.

Store and book name	A	B	C
Quant	20%	10%	15%
Reasoning		15%	20%
English	15%	20%	

Selling price of reasoning book for store C = $\frac{170}{100-15} \times (100 - 20) = \text{Rs. } 160$

S146. Ans.(b)

Sol.

$$\text{required percentage} = \frac{8500}{13600} \times 100 = 62.5\%$$

S147. Ans.(b)

Sol.

No. of defective article manufactured by firm S = $\frac{15000}{75} \times 2 = 400$

Required ratio = 13600:400

$$= 34:1$$

S148. Ans.(d)

Sol.

Average no. of non-defective article manufactured by firm Q and R
 $= \frac{1}{2} \times (8500 + 13500) = 11000$
 Required percentage $= \frac{11000}{15000} \times 100 = 73\frac{1}{3}\%$

S149. Ans.(c)

Sol.

$30\% = \frac{3}{10}$ and $30\frac{10}{13}\% = \frac{4}{13}$
 Let total no. of article manufactured by firm P and R are $10x$ and $13y$ respectively.
 So, non-defective article manufactured by firm P $= 10x \times \frac{7}{10} = 7x$
 Non-defective article manufactured by firm R $= 13y \times \frac{9}{13} = 9y$
 ATQ
 defective article manufactured by firm P $= \frac{7000}{7x} \times 3x = 3000$
 defective article manufactured by firm R $= \frac{13500}{9y} \times 4y = 6000$
 required percentage $= \frac{(6000-3000)}{6000} \times 100 = 50\%$

S150. Ans.(b)

Sol.

Required ratio $= (8500 + 13500) : (7000 + 15000)$
 $= 1:1$

S151. Ans.(b)

Sol.

1 day wage of 4 men & 3 children $= \frac{600}{3} = \text{Rs. } 200$
 Let efficiency of a man & a child be M & C units/day respectively
 Equating total work,
 $(4M + 3C) \times 3 = M \times 15$
 $M : C = 3 : 1$ (this is also ratio of daily wage)
 Daily wage of a man $= \frac{3}{15} \times 200 = \text{Rs. } 40$

S152. Ans.(d)

Sol.

ATQ, $\frac{50}{100}y - \frac{10}{100}x = 170$
 $\frac{40}{100}x = \frac{30}{100}y \Rightarrow \frac{x}{y} = \frac{3}{4}$
 $\frac{50}{100} \times \frac{4}{3}x - \frac{10}{100}x = 170$
 $x = 300 \Rightarrow y = 400$
 Required answer $= x + y = 300 + 400 = 700$

S153. Ans.(d)

Sol.

Let ratio of P's investment and Q's investment be $x:y$
 Therefore, profit will be shared in the ratio $4x:5y$
 Given, $\frac{4x}{4x+5y} \times 75000 = 15000$
 $\frac{4x}{4x+5y} = \frac{1}{5}$
 $20x = 4x + 5y$
 $16x = 5y$
 $y : x = 16:5$

S154. Ans.(c)

Sol.

let the smallest odd number be 'a' so next odd number be 'a+2' and so on
 8^{th} number $= a + (8 - 1) \times 2 = a + 14$ (using AP, nth term $= a + (n-1)d$)
 ATQ, $\frac{a+a+2+\dots+a+14}{8} = 10$
 $8a + 56 = 80$ (using sum of AP)
 $a = \frac{80 - 56}{8} = 3$
 Since 'a' is smallest number, so smallest 4 numbers will be $= 3, 5, 7, 9$
 Required average $= \frac{3+5+7+9}{4} = 6$

S155. Ans.(b)

Sol.

Let efficiency of a man & a boy be M & B units/day respectively
 $5B \times 20 = 10M \times 8$
 $\frac{M}{B} = \frac{5}{4}$
 Total work $= (4 \times 5 + 4 \times 4) \times 3 = 108 \text{ units}$
 Work done by 4 boys in 3 days $= 4 \times 4 \times 3 = 48 \text{ units}$
 Amount earned by boys for their contribution $= \frac{48}{108} \times 540 = \text{Rs. } 240$

S156. Ans.(d)

Sol.

let maximum marks be x
 $\frac{56}{100}x - 10 = \frac{48}{100}x + 6$
 $x = 200$
 Marks of Sanjay $= \frac{56}{100}x = 112$
 Passing marks $= 112 - 10 = 102$
 Pass % $= \frac{102}{200} \times 100 = 51\%$

S157. Ans.(d)

Sol.

Required number of ways $= {}^7P_4$
 $= 7 \times 6 \times 5 = 210 \text{ ways}$

S158. Ans.(a)

Sol.

In basket, there are 8 red balls and 6 green balls
 Probability(both being either red or blue) = $\frac{{}^8C_2 + {}^6C_2}{{}^{14}C_2}$
 $= \frac{28+15}{91} = \frac{43}{91}$

S159. Ans.(d)

Sol.

side of square = $\sqrt{25} = 5 \text{ cm}$
 Since non-parallel sides are equal,
 4 cm



Height of trapezium = $\sqrt{5^2 - 3^2} = 4 \text{ cm}$
 Area of trapezium = $\frac{1}{2}(\text{base1} + \text{base2}) \times \text{height}$
 $\frac{1}{2} \times (4 + 10) \times 4 = 28 \text{ cm}^2$

S160. Ans.(e)

Sol.

let side of square be x cm

$$\frac{x^2}{10x} = \frac{4}{5}$$

$$x = 8 \text{ cm}$$

Diagonal of square = $\sqrt{2}x = 8\sqrt{2} \text{ cm}$

S161. Ans.(c)

Sol.

amount received by Rohit = $4000 + \frac{4000 \times 10 \times 2}{100} = \text{Rs. } 4800$

S162. Ans.(e)

Sol.

interest amount received by Karan = $\frac{8000 \times 10 \times 2}{100} = \text{Rs. } 1600$

Interest amount received by Mahesh = $\frac{6000 \times 12 \times 4}{100} = \text{Rs. } 2880$

Required % = $\frac{2880-1600}{1600} \times 100 = 80\%$

S163. Ans.(d)

Sol.

total interest amount received by Anurag & Rohit together
 $= \frac{4000 \times 16 \times 4}{100} + \frac{4000 \times 10 \times 2}{100} = \text{Rs. } 3360$

S164. Ans.(a)

Sol.

interest received by Karan (SI) = $\frac{8000 \times 10 \times 2}{100} = \text{Rs. } 1600$

Interest received by Karan (CI) = $8000 \left(1 + \frac{10}{100}\right)^2 - 8000 = \text{Rs. } 1680$

Required value = $1680 - 1600 = \text{Rs. } 80$

S165. Ans.(e)

Sol.

Interest received by Karan = $\frac{8000 \times 10 \times 2}{100} = \text{Rs. } 1600$

Interest received by Anurag = $\frac{4000 \times 16 \times 4}{100} = \text{Rs. } 2560$

Interest received by Mahesh = $\frac{6000 \times 12 \times 4}{100} = \text{Rs. } 2880$

Interest received by Rohit = $\frac{4000 \times 10 \times 2}{100} = \text{Rs. } 800$

Clearly, Mahesh had received highest interest

S166. Ans.(c)

Sol.

Total marks scored by lokesh in physics, chemistry and maths together

$$= 150 \times \frac{80}{100} + 150 \times \frac{76}{100} + 150 \times \frac{84}{100}$$

$$= 120 + 114 + 126$$

$$= 360$$

Total marks scored by Amit in physics, chemistry and maths together

$$= 150 \times \frac{70}{100} + 150 \times \frac{66}{100} + 150 \times \frac{58}{100}$$

$$= 105 + 99 + 87$$

$$= 291$$

Required difference = $360 - 291 = 69$

S167. Ans.(d)

Sol.

Total marks scored by Siddharth in all the subjects

$$= 150 \times \frac{48}{100} + 150 \times \frac{72}{100} + 150 \times \frac{88}{100} + 100 \times \frac{70}{100} + 100 \times \frac{86}{100}$$

$$= 72 + 108 + 132 + 70 + 86$$

$$= 468$$

overall percentage marks scored by Siddharth = $\frac{468}{650} \times 100$

$$= 72\%$$

S168. Ans.(a)

Sol.

Total marks scored by Ritesh in all the subjects

$$= 150 \times \frac{76}{100} + 150 \times \frac{82}{100} + 150 \times \frac{64}{100} + 100 \times \frac{72}{100} + 100 \times \frac{94}{100}$$

$$= 114 + 123 + 96 + 72 + 94$$

$$= 499$$

Total marks scored by Aakash in all the subjects

$$= 150 \times \frac{50}{100} + 150 \times \frac{64}{100} + 150 \times \frac{78}{100} + 100 \times \frac{65}{100} + 100 \times \frac{75}{100}$$

$$= 75 + 96 + 117 + 65 + 75$$

$$= 428$$

Required difference = $499 - 428 = 71$

S169. Ans.(c)

Sol.

marks scored in physics subject by all the given five students together

$$=150 \times \frac{66}{100} + 150 \times \frac{64}{100} + 150 \times \frac{72}{100} + 150 \times \frac{76}{100} + 150 \times \frac{82}{100}$$

$$=99+96+108+114+123$$

$$=540$$

$$\text{Average marks scored in physics} = \frac{540}{5} = 108$$

S170. Ans.(b)

Sol.

Total marks scored by Aakash, Siddharth and Lokesh in English

$$=100 \times \frac{65}{100} + 100 \times \frac{70}{100} + 100 \times \frac{75}{100}$$

$$=65+70+75$$

$$=210$$

Total marks scored by Amit, Aakash and Lokesh in maths

$$=150 \times \frac{70}{100} + 150 \times \frac{50}{100} + 150 \times \frac{80}{100}$$

$$=105+75+120$$

$$=300$$

$$\text{Required percentage} = \frac{210}{300} \times 100$$

$$=70\%$$

S171. Ans.(d)

Sol.

$$\text{total watches manufactured by Casio, Titan \& Sonata} = \frac{20+15+25}{100} \times 1000 = 600$$

$$\text{required average} = \frac{600}{3} = 200$$

S172. Ans.(c)

Sol.

$$\text{required ratio} = \frac{10+25}{100} \times 1000 : \frac{20+20}{100} \times 1000 = 7:8$$

S173. Ans.(b)

Sol.

$$\text{watches manufactured of Sonata} = \frac{25}{100} \times 1000 = 250$$

$$\text{Watches manufactured of Rado} = \frac{10}{100} \times 1000 = 100$$

$$\text{Required \%} = \frac{250-100}{100} \times 100 = 150\%$$

S174. Ans.(e)

Sol.

in next year

$$\text{No. of Titan watches manufactured} = \frac{110}{100} \times \frac{15}{100} \times 1000 = 165$$

$$\text{No. of Timex watches manufactured} = \frac{90}{100} \times \frac{10}{100} \times 1000 = 90$$

$$\text{Required difference} = 165 - 90 = 75$$

S175. Ans.(b)

Sol.

$$\text{Average no. of watches manufactured} = \frac{1000}{6} = 166.67$$

Watches manufactured

$$\text{Casio} = \frac{20}{100} \times 1000 = 200$$

$$\text{Titan} = \frac{15}{100} \times 1000 = 150$$

$$\text{Sonata} = \frac{25}{100} \times 1000 = 250$$

$$\text{Timex} = \frac{10}{100} \times 1000 = 100$$

$$\text{Fossil} = \frac{20}{100} \times 1000 = 200$$

$$\text{Rado} = \frac{10}{100} \times 1000 = 100$$

$$\text{Required answer} = \text{Casio, Sonata, Fossil} = 3$$

S176. Ans.(c)

Sol.

Total number of student from engineering and architecture department together

$$=5400 \times \frac{25}{100} + 5400 \times \frac{18}{100} = 1350+972$$

$$=2322$$

Total students from the pharmacy and BSc department together

$$=5400 \times \frac{15}{100} + 5400 \times \frac{12}{100}$$

$$=810+648=1458$$

$$\text{Required ratio} = \frac{2322}{1458} = 43:27$$

S177. Ans.(d)

Sol.

total number of females in pharmacy and finearts together

$$=5400 \times \frac{15}{100} \times \frac{2}{3} + 5400 \times \frac{10}{100} \times \frac{2}{5}$$

$$=756$$

S178. Ans.(a)

Sol.

central angle of the total students of architecture departments of the university

$$=18 \times \frac{360}{100} = 64.8^\circ$$

S179. Ans.(b)

Sol.

Total number of students from MBBS and Finearts department together

$$=5400 \times \frac{20}{100} + 5400 \times \frac{10}{100} = 1080+540$$

$$=1620$$

Total failed student in the final semester exam from MBBS and Finearts dept

$$=5400 \times \frac{20}{100} \times \frac{20}{100} + 5400 \times \frac{10}{100} \times \frac{15}{100}$$

$$=297$$

total number of student who passed the semester from MBBS and Finearts dept

$$=1620 - 297$$

$$=1323$$

S180. Ans.(e)

Sol.

$$\begin{aligned} \text{Total students from engineering and pharmacy department together} &= 5400 \times \frac{25}{100} + 5400 \times \frac{15}{100} \\ &= 1350 + 810 \\ &= 2160 \end{aligned}$$

$$\begin{aligned} \text{total students from MBBS and Fine arts department together} &= 5400 \times \frac{20}{100} + 5400 \times \frac{10}{100} \\ &= 1080 + 540 \\ &= 1620 \end{aligned}$$

$$\begin{aligned} \text{Required percentage} &= \frac{2160}{1620} \times 100 \\ &= 134 \% \text{ (approx.)} \end{aligned}$$

S181. Ans.(b)

Sol.

$$\begin{aligned} \text{Total spectators of Badminton and kabaddi together} &= 14000 \times \frac{23}{100} + 14000 \times \frac{7}{100} \\ &= 3220 + 980 \\ &= 4200 \end{aligned}$$

$$\begin{aligned} \text{Total spectators of cricket and hockey together} &= 14000 \times \frac{22}{100} + 14000 \times \frac{18}{100} \\ &= 3080 + 2520 \\ &= 5600 \end{aligned}$$

$$\begin{aligned} \text{Required percentage} &= \frac{4200}{5600} \times 100 \\ &= 75\% \end{aligned}$$

S182. Ans.(c)

Sol.

$$\begin{aligned} \text{Total spectators of Football and tennis together} &= 14000 \times \frac{16}{100} + 14000 \times \frac{14}{100} \\ &= 2240 + 1960 \\ &= 4200 \end{aligned}$$

$$\text{Total spectators of Cricket} = 14000 \times \frac{22}{100} = 3080$$

$$\begin{aligned} \text{Required ratio} &= \frac{4200}{3080} \\ &= 15:11 \end{aligned}$$

S183. Ans.(e)

Sol.

$$\begin{aligned} \text{central angle of total spectators of badminton and tennis together} &= (23+14) \times \frac{360}{100} \\ &= 133.2^\circ \end{aligned}$$

S184. Ans.(d)

Sol.

$$\begin{aligned} \text{Total male spectators of hockey} &= 14000 \times \frac{18}{100} \times \frac{9}{15} \\ &= 1512 \end{aligned}$$

$$\begin{aligned} \text{Total female spectators of hockey} &= 14000 \times \frac{18}{100} \times \frac{6}{15} \\ &= 1008 \end{aligned}$$

$$\begin{aligned} \text{Required difference} &= 1512 - 1008 \\ &= 504 \end{aligned}$$

S185. Ans.(b)

Sol.

$$\begin{aligned} \text{Total spectators of cricket and football together} &= 14000 \times \frac{22}{100} + 14000 \times \frac{16}{100} \\ &= 3080 + 2240 \\ &= 5320 \end{aligned}$$

$$\begin{aligned} \text{Total spectators of badminton and tennis together} &= 14000 \times \frac{23}{100} + 14000 \times \frac{14}{100} \\ &= 3220 + 1960 \\ &= 5180 \end{aligned}$$

$$\begin{aligned} \text{Required difference} &= 5320 - 5180 \\ &= 140 \end{aligned}$$

S186. Ans.(d)

Sol.

$$\text{I. } 2x^2 - 17x + 36 = 0$$

$$2x^2 - 8x - 9x + 36 = 0$$

$$2x(x-4) - 9(x-4) = 0$$

$$(2x-9)(x-4) = 0$$

$$x = \frac{9}{2}, 4$$

$$\text{II. } 2y^2 - 19y + 45 = 0$$

$$2y^2 - 10y - 9y + 45 = 0$$

$$2y(y-5) - 9(y-5) = 0$$

$$(2y-9)(y-5) = 0$$

$$y = \frac{9}{2}, 5$$

$$\therefore y \geq x$$

S187. Ans.(e)

Sol.

$$\text{I. } x^2 - 25x + 154 = 0$$

$$x^2 - 14x - 11x + 154 = 0$$

$$x(x-14) - 11(x-14) = 0$$

$$(x-11)(x-14) = 0$$

$$x = 11, 14$$

$$\text{II. } y^2 - 28y + 195 = 0$$

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

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

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

$$y = 13, 15$$

$$\therefore \text{no relation}$$

S188. Ans.(a)

Sol.

$$\text{I. } \frac{10}{x} - \frac{24}{x^2} = 1$$

Multiplying by x^2 on both side

$$10x - 24 = x^2$$

$$x^2 - 10x + 24 = 0$$

$$x^2 - 6x - 4x + 24 = 0$$

$$x(x-6) - 4(x-6) = 0$$

$$(x-4)(x-6) = 0$$

$$x = 4, 6$$

$$\text{II. } \frac{5}{y} - \frac{6}{y^2} = 1$$

Multiplying by y^2 on both side

$$5y - 6 = y^2$$

$$y^2 - 5y + 6 = 0$$

$$y^2 - 3y - 2y + 6 = 0$$

$$y(y - 3) - 2(y - 3) = 0$$

$$(y - 2)(y - 3) = 0$$

$$y = 2, 3$$

$$\therefore x > y$$

S189. Ans.(d)

Sol.

$$I. 3x^2 - 10x - 8 = 0$$

$$3x^2 - 12x + 2x - 8 = 0$$

$$3x(x - 4) + 2(x - 4) = 0$$

$$(3x + 2)(x - 4) = 0$$

$$x = -\frac{2}{3}, 4$$

$$II. 2y^2 - 23y + 60 = 0$$

$$2y^2 - 8y - 15y + 60 = 0$$

$$2y(y - 4) - 15(y - 4) = 0$$

$$(y - 4)(2y - 15) = 0$$

$$y = 4, \frac{15}{2}$$

$$\therefore y \geq x$$

S190. Ans.(a)

Sol.

$$I. 12x - 16y + 16 = 0$$

$$3x - 4y + 4 = 0 \quad \dots(i)$$

$$II. 17y - 13x = 12 \quad \dots(ii)$$

By multiplying equation (i) by 13 & equation (ii) by 3

$$39x - 52y = -52$$

$$-39x + 51y = 36$$

$$y = 16 \text{ \& } x = 20$$

$$\therefore x > y$$

S191. Ans (c)

Sol.

$$I. 4x^2 + 4x + 1 = 0$$

$$(2x + 1)^2 = 0$$

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

$$II. 9y^2 + 6y + 1 = 0$$

$$(3y + 1)^2 = 0$$

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

$$\therefore x < y$$

S192. Ans (e)

Sol.

$$I. (x - 2)^2 = 4$$

$$x - 2 = \pm 2$$

$$x = 0, 4$$

$$II. y^2 - 2y + 1 = 0$$

$$(y - 1)^2 = 0$$

$$y = 1$$

\therefore no relation can be obtained.

S193. Ans (e)

Sol.

$$I. 3x + 2y = 5$$

$$II. 4x + 6y = 10$$

Applying $2 \times I$ and equate with II

$$x = y = 1$$

$$\therefore x = y$$

S194. Ans (d)

Sol.

$$I. x^2 - 4x - 21 = 0$$

$$x^2 - 7x + 3x - 21 = 0$$

$$x(x - 7) + 3(x - 7) = 0$$

$$(x + 3)(x - 7) = 0$$

$$x = -3, 7$$

$$II. y^2 - 16y + 63 = 0$$

$$y^2 - 7y - 9y + 63 = 0$$

$$y(y - 7) - 9(y - 7) = 0$$

$$(y - 7)(y - 9) = 0$$

$$y = 7, 9$$

So, $y \geq x$

S195. Ans (a)

Sol.

$$I. 2x = 3y - 1$$

$$II. x + y = 7$$

Applying $2 \times II - I$

$$2x + 2y - 2x = 14 - 3y + 1$$

$$5y = 15$$

$$y = 3$$

$$\text{And } x = 4$$

$$\therefore x > y$$

S196. Ans.(d)

Sol.

$$I. 4x^2 + 6x - 2x - 3 = 0$$

$$2x(2x + 3) - 1(2x + 3) = 0$$

$$(2x - 1)(2x + 3) = 0$$

$$\text{So, } x = \frac{1}{2}, -\frac{3}{2}$$

$$II. 4y^2 - 6y - 2y + 3 = 0$$

$$2y(2y - 3) - 1(2y - 3) = 0$$

$$(2y - 1)(2y - 3) = 0$$

$$y = \frac{1}{2}, \frac{3}{2}$$

So, $y \geq x$

S197. Ans(c)

Sol.

$$I. 11x - 13y + 48 = 0$$

$$II. 13y + 11x = 290$$

Adding I and II

$$22x + 48 = 290$$

$$x = \frac{242}{22}$$

$$x = 11$$

Put $x = 11$ in I

$$121 - 13y + 48 = 0$$

$$13y = 169$$

$$y = 13$$

So, $y > x$

S198. Ans(a)

Sol.

$$I. 2x + 3xy = 207$$

$$II. 15x = \frac{945}{y}$$

From II

$$xy = 63$$

$$\text{So, } 3xy = 189$$

Put value of $3xy$ in I

$$2x + 189 = 207$$

$$x = \frac{18}{2}$$

$$x = 9$$

$$y = 7$$

So, $x > y$

S199. Ans(e)

Sol.

$$I. x^2 - 14x + 33 = 0$$

$$x^2 - 11x - 3x + 33 = 0$$

$$x(x - 11) - 3(x - 11) = 0$$

$$(x - 11)(x - 3) = 0$$

$$x = 3, 11$$

$$II. y^2 - 15y + 44 = 0$$

$$y^2 - 11y - 4y + 44 = 0$$

$$y(y - 11) - 4(y - 11) = 0$$

$$(y - 4)(y - 11) = 0$$

$$y = 4, 11$$

So, no relation can be obtained between x and y .

S200. Ans(e)

Sol.

$$I. 8x^2 + 28x - 6x - 21 = 0$$

$$4x(2x + 7) - 3(2x + 7) = 0$$

$$(4x - 3)(2x + 7) = 0$$

$$x = -\frac{7}{2}, \frac{3}{4}$$

$$II. 18y^2 + 42y - 15y - 35 = 0$$

$$6y(3y + 7) - 5(3y + 7) = 0$$

$$(6y - 5)(3y + 7) = 0$$

$$y = -\frac{7}{3}, \frac{5}{6}$$

So, no relation can be obtained between x and y .

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