

100 Questions PDF for FCI Assistant Grade 3- Quantitative Aptitude

Directions (1-5): What should come in place of question mark (?) in the following questions.

Q1. 0.5, 1, 1.5, ?, 0.75, 0

- (a) 2
- (b) 1.5
- (c) 1.25
- (d) 1
- (e) 0.75

Q2. 5, 15, 45, 135, ?, 1215

- (a) 415
- (b) 395
- (c) 410
- (d) 405
- (e) 400

Q3. 90, 96, 102, 108, 114, ?

- (a) 116
- (b) 124
- (c) 118
- (d) 122
- (e) 120

Q4. 389, 380, 370, 359, ?, 334

- (a) 347
- (b) 345
- (c) 351
- (d) 350
- (e) 348

Q5. 1, 2, 3, 5, 8, ?, 21, 34

- (a) 10
- (b) 13
- (c) 9
- (d) 12
- (e) 8

Directions (6-10):- What will come in place of question mark (?) in the following questions.

Q6. $\left(\frac{4^{\text{of}25}}{48}\right) \div \left(\frac{5}{4} \text{ of } 32 + \frac{3}{7} \text{ of } 21\right) = ? \text{ of } \frac{1}{49}$

- (a) 3.5
- (b) 3
- (c) 2.5
- (d) 4
- (e) 5

Q7. $\sqrt{?}$ of 6 + 20% of 95 = $\frac{1}{2}$ of 62

- (a) 3
- (b) 4
- (c) 5
- (d) 6
- (e) 7

Q8. $\left(\frac{5}{3} \text{ of } 6 \frac{3}{5} \text{ of } \frac{9}{11}\right) + ?^2 = 45$

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

Q9. $\left(\frac{4}{7} \times \frac{14}{5} \div 2\right) - \left(\frac{3}{10} \text{ of } ?\right) = \frac{4}{5} - 3$

- (a) 10
- (b) 8
- (c) 9
- (d) 11
- (e) 12

Q10. $4 \frac{4}{5} + 2 \frac{1}{15} - \frac{27}{5} = 2 \frac{1}{5} \div 3 \times ?$

- (a) $\frac{2}{9}$
- (b) 1
- (c) 2
- (d) 3
- (e) $\frac{1}{9}$

Directions (11-15): Find the wrong term in the following number series questions.

Q11. 132, 156, 182, 210, 235, 272, 306

- (a) 306
- (b) 132
- (c) 235
- (d) 272
- (e) 156

Q12. 100, 148, 220, 316, 436, 580, 752

- (a) 752
- (b) 220
- (c) 316
- (d) 100
- (e) 436

Q13. 12, 6, 6, 12, 48, 382, 6144

- (a) 6144
- (b) 6
- (c) 48
- (d) 382
- (e) 12

Q14. 140, 137, 131, 120, 110, 95, 77

- (a) 140
- (b) 120
- (c) 131
- (d) 77
- (e) 95

Q15. 16, 9, 10, 16, 34, 83.5, 251.5

- (a) 16
- (b) 10
- (c) 34
- (d) 83.5
- (e) 251.5

Directions (16-20):- In each of the following questions, two equations (I) and (II) are given. Solve the equations and mark the correct option:

- (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 .

Q16. I. $x^2 + 5x + 6 = 0$

II. $y^2 + 9y + 14 = 0$

Q17. I. $x^2 - 18x + 45 = 0$

II. $y^2 + 12y - 45 = 0$

Q18. I. $9x^2 + 11x + 2 = 0$

II. $8y^2 + 6y + 1 = 0$

Q19. I. $6x^2 + 5x + 1 = 0$

II. $4y^2 - 15y = 4$

Q20. I. $x^2 + 3x = 0$

II. $x^2 + y = 10$

Directions (21-25):- What approximate value will come in place of question mark (?) in the following questions. (You are not expected to find the exact value)

Q21. $\frac{125.98}{154.03} \times \frac{198.02}{17.99} - \frac{156.05}{101.98} \times \frac{51.03}{78.03} = ?$

- (a) 8
- (b) 25
- (c) 35
- (d) 50
- (e) 0



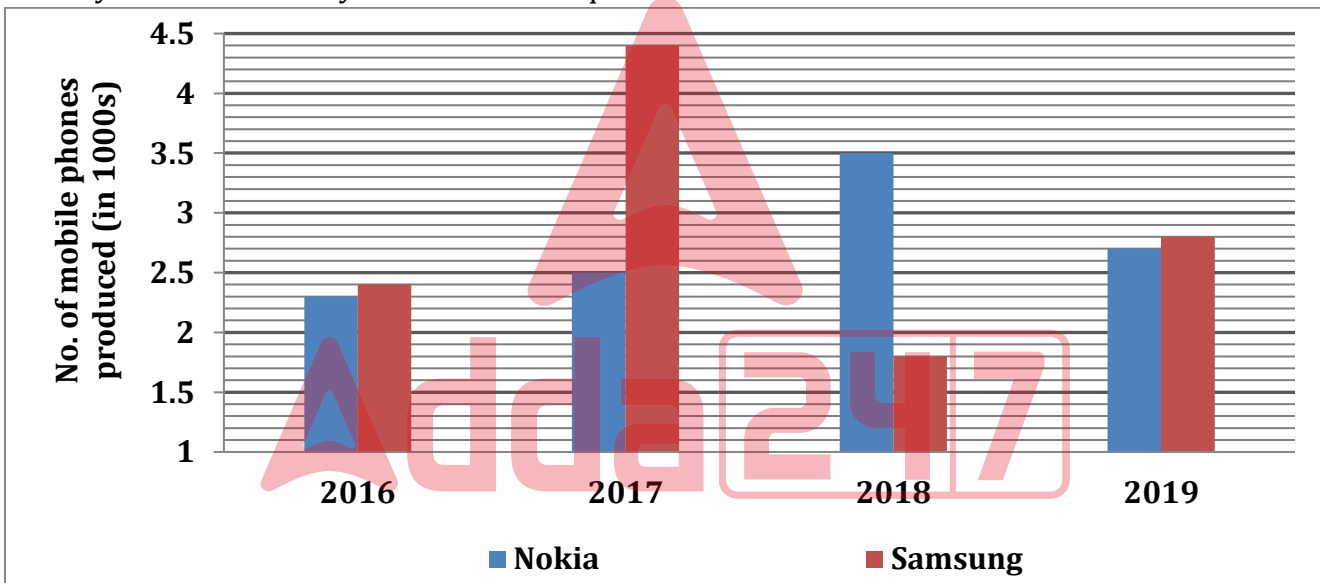
- Q22.** 80.08% of $349.98 + 45.02\%$ of $799.99 = ?\% \times 255.95$
- (a) 300
 (b) 270
 (c) 235
 (d) 250
 (e) 200

- Q23.** $\sqrt{1224.99} \div 6.99 = ? - 1799.98$
- (a) 1600
 (b) 1810
 (c) 1950
 (d) 1710
 (e) 1900

- Q24.** $2744.98 - 1417.99 = ? + 987.98$
- (a) 369
 (b) 299
 (c) 119
 (d) 229
 (e) 339

- Q25.** $?^2 = 44.99\%$ of $4500.02 - 24.99\%$ of $3959.98 + 87.01 \times 2.97$
- (a) 0
 (b) 16
 (c) 36
 (d) 56
 (e) 80

Directions (26-30):- Given bar graph shows the production of mobile phones by Nokia & Samsung in 4 years. Study the data carefully and answer the questions.



- Q26.** How many mobile phones have been produced of Samsung over all the years?
- (a) 10800
 (b) 11600
 (c) 11400
 (d) 11000
 (e) 11200

- Q27.** Nokia mobiles produced in 2016 & 2017 together are how much more than Samsung mobiles produced in 2018 & 2019?
- (a) 800
 (b) 100

- (c) 400
 (d) 300
 (e) 200

- Q28.** Samsung mobiles produced in 2018 are what percent of Nokia mobiles produced in 2019?
- (a) None of these
 (b) 60%
 (c) 75%
 (d) $66\frac{2}{3}\%$
 (e) $68\frac{2}{3}\%$

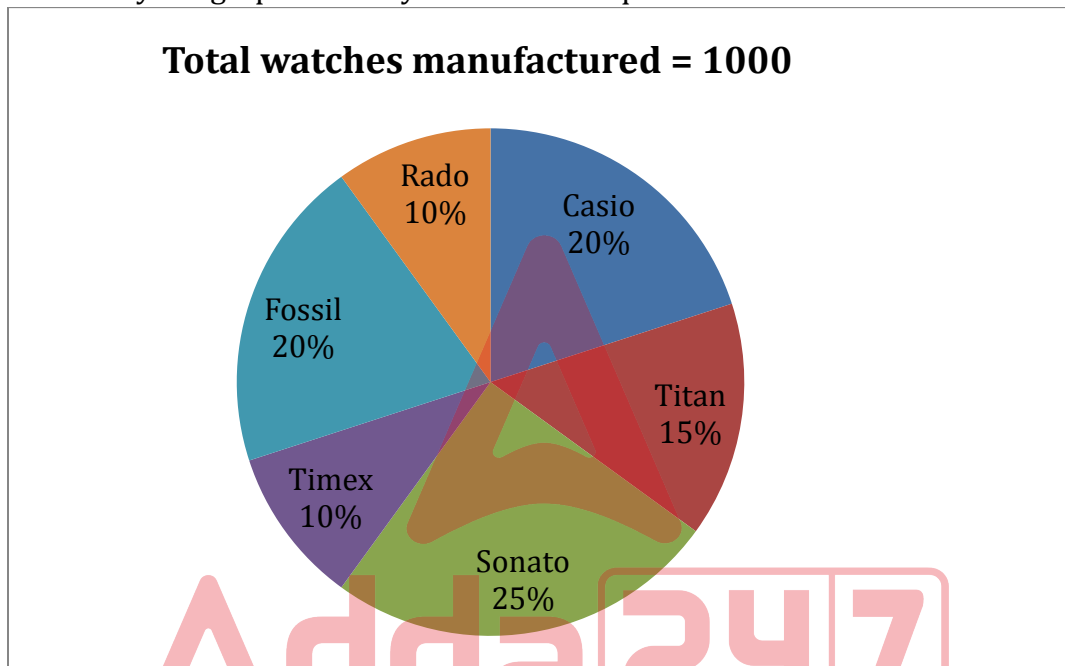
Q29. What is the ratio of Nokia mobiles produced in 2016, 2017 & 2018 together to Samsung mobiles produced in 2016, 2017 & 2019 together?

- (a) 83:96
- (b) 35:32
- (c) 83:86
- (d) 96: 83
- (e) None of these

Q30. In which year the increase in production was maximum as compared to previous year & for which company?

- (a) Nokia, 2017
- (b) Nokia, 2018
- (c) Samsung, 2019
- (d) Nokia, 2019
- (e) Samsung, 2017

Directions (31-35): Given pie graph shows percentage distribution of watches manufactured by a company in 2018. Study the graph carefully & answer the questions.



Q31. What is average of watches manufactured by Casio, Titan & Sonata together?

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

Q33. Watches manufactured of Sonata are what percent more/less than watches manufactured of Rado?

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

Q32. 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

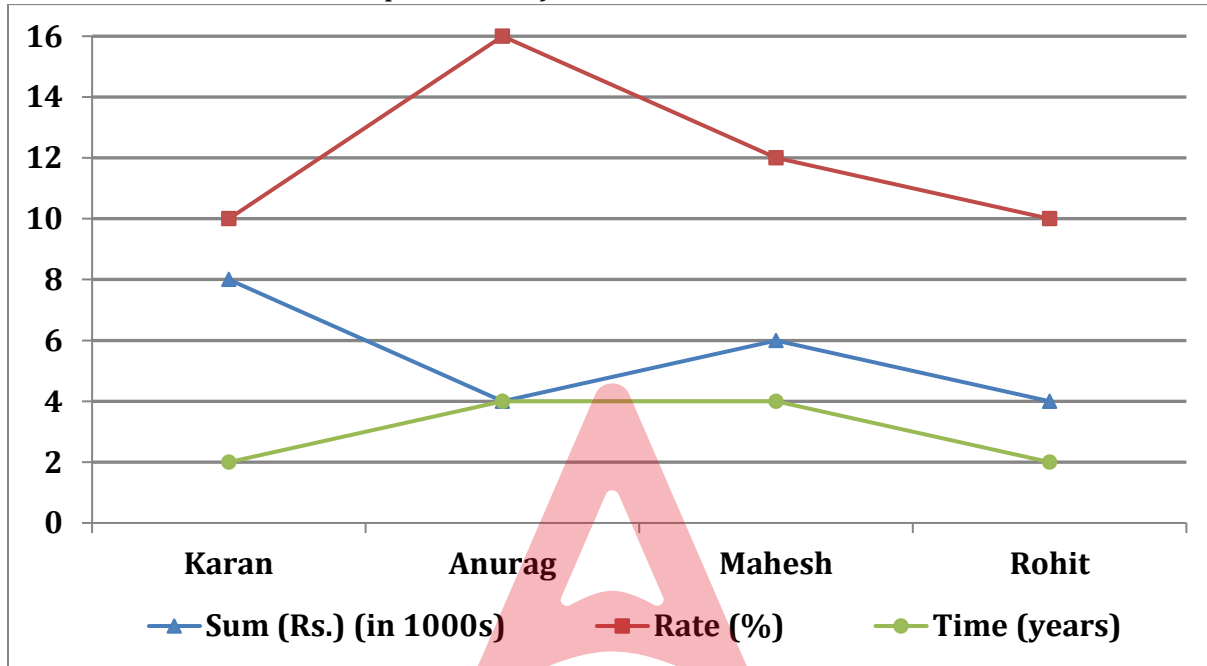
Q34. If next year, Titan watch production increases by 10% while that of Timex decreases by 10%. What is difference in manufacturing of both in next year?

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

- Q35.** 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 (36-40): 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)



- Q36.** How much will Rohit receive after completion of his investment period? (in Rs.)
 (a) 5200 (b) 6800
 (c) 4800 (d) 4400
 (e) 4600

- Q37.** 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%

- Q38.** 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

- Q39.** 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

- Q40.** Who among the four had received the highest amount as interest?
 (a) Karan (b) Anurag
 (c) Both Anurag & Mahesh (d) Rohit
 (e) Mahesh

Directions (41-45): Study the following information carefully and answer the question accordingly.

Three stationary owners A, B and C sells Pen and Pencil. The ratio of the number of pens to pencil sold by stationary A was 7:5 and that sold by stationary B was 3:2 respectively. The number of pens and pencil sold by stationary C was 128 and ratio of number of pens to pencil sold by stationary C was 5:3. The total number of pens sold by stationary A was 10 % more than the pen sold by stationary B. Total numbers of pen and pencils sold by all the three stationary was 874.

Q41. If cost of each pen and each pencil sold by A is Rs 20 and Rs 10 respectively, then find total amount earned by stationary A?

- (a) Rs 6370
- (b) Rs 6470
- (c) Rs 6270
- (d) Rs 6300
- (e) Rs 6400

Q42. What is the ratio of pens sold by stationary A and B together to pencils sold by B and C together?

- (a) 188:441
- (b) 441:188
- (c) 233:447
- (d) 447:233
- (e) None of these

Q43. Find average numbers of pens sold by all the three stationary?

- (a) 176.67
- (b) 172.67
- (c) 177.67
- (d) 173.67
- (e) 179.67

Q44. If number of pens sold by stationary B is increased by 20% and number of pencils sold by stationary C is increased by 25%, then what is sum of total pens sold by stationary B and pencil sold by stationary C?

- (a) 312
- (b) 322
- (c) 328
- (d) 340
- (e) 304

Q45. What is the difference between total number of pens sold by all the 3 stationary together and total number of pencils sold by all the 3 stationary together?

- (a) 178
- (b) 172
- (c) 168
- (d) 184
- (e) 190

Directions (46-50):- Each of the following questions is provided with 2 statements i.e. Statement I & Statement II. You have to study them and find which statement (s) is/are necessary to answer the question as per the instruction set given below.

- (a) Only Statement I is necessary
- (b) Only Statement II is necessary
- (c) Neither Statement I nor Statement II
- (d) Either Statement I or Statement II is necessary.
- (e) Both Statement I & Statement II together are necessary.

Q46. What is ratio of a to b?

Statement I: 50% of a is 25% of b.

Statement II: 30% of a is 75% of b.

Q47. How many people (male + female) are there in aeroplane?

Statement I: There are 45 females in aeroplane.

Statement II: 36% of total passengers are females.

Q48. What is age of P?

Statement I: average age of P and R is 12 years.

Statement II: R is younger than P.

Q49. What is the area of floor?

Statement I: Flooring the hall at the rate Rs. 100/sq.m. is Rs. 10000.

Statement II: painting cost of floor is Rs. 25 per sq.m.

Q50. What is area of right angle triangle (having integral sides)?

Statement I: The perimeter of right angle triangle is equal to perimeter of square having side 5 cm.

Statement II: length of hypotenuse is 5 cm.

Directions (51-55):- Following Table chart gives the details of 5 students of a particular school in five different subjects in the annual exam.

	Maths (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.

Q51. 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

Q52. Find the overall percentage of marks scored by Siddharth in the exam?

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

Q53. 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

Q54. 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

Q55. 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%

Q56. At present, Suresh is six times his son's age. 13 years from now, the ratio of ages of Suresh and his son will be 11:4 respectively. Find Suresh's present age ?

- (a) 36 yrs
- (b) 48 yrs
- (c) 30 yrs
- (d) 42 yrs
- (e) None of these

Q57. 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%



Q58. Shatabdi express leaves from delhi to Kolkata at 3 p.m at 60 km/hr. If another train, duronto express leaves from the same station at 5 p.m at 90 km/hr for Kolkata. At what distance from delhi, the both train will meet each other?

- (a) 360 km
- (b) 450 km
- (c) 320 km
- (d) 420 km
- (e) 480 km

Q59. The speed of the boat in still water is 15 km/hr. If the boat travels 54 km each in downstream and upstream in 7.5 hrs, then find the time taken by the boat to travel 48 km in upstream?

- (a) 8 hrs
- (b) 6 hrs
- (c) 3 hrs
- (d) 5 hrs
- (e) 4 hrs

Q60. 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) $\frac{43}{91}$
- (b) $\frac{47}{91}$
- (c) $\frac{51}{91}$
- (d) $\frac{43}{87}$
- (e) $\frac{43}{82}$

Q61. 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

Q62. 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

Q63. A & B can do a work in 12 days when working together while A alone does it in 25 days. In what time the work will be finished if each A & B completes half of the work? (in days)

- (a) $24\frac{7}{26}$
- (b) $24\frac{1}{26}$
- (c) $22\frac{1}{26}$
- (d) $18\frac{9}{26}$
- (e) $22\frac{11}{26}$

Q64. Jai scores 20% higher than Raj in an exam who scores 30% more than Ronit who scores 10% less than Ravi. What percent of marks are scored by Jai as compared to Ravi?

- (a) 117%
- (b) 140.4%
- (c) 90%
- (d) 127.8%
- (e) None of these

Q65. In a mixture of juice and water, juice is 20% more than water. This is mixed with another mixture having juice & water in ratio 5:6. If these two are mixed in ratio 3:4. Find ratio of juice & water in final mixture.

- (a) 35 : 39
- (b) 35 : 38
- (c) 1 : 1
- (d) 38 : 41
- (e) 38 : 39

Q66. If the length and breadth of a rectangle is increased by 20% and 10% respectively, then find the percentage increase in the area of the rectangle?

- (a) 36 %
- (b) 32%
- (c) 28%
- (d) 40%
- (e) 34%

Q67. If pipe A alone and Pipe B alone can fill a tank in 20 min and 30 min respectively and pipe C alone can empty it in 10 min. If the tank is completely filled, then find the time taken to empty the tank if all the three pipes are opened simultaneously?

- (a) 45 min
- (b) 50 min
- (c) 60 min
- (d) 40 min
- (e) 55 min

Q68. 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

Q69. In a basket, there are 7 green ball, 6 blue ball and 5 red balls and if 2 balls are selected randomly from the basket, then what is the probability that both are either green or red ?

- (a) $\frac{31}{153}$
- (b) $\frac{31}{143}$
- (c) $\frac{37}{153}$
- (d) $\frac{38}{151}$
- (e) $\frac{31}{156}$

Q70. A container is full of 75 litre milk. If 15 litre content of container is replaced by water and the same process is further repeated two times, then find the quantity of milk left in the final solution?

- (a) 36.4 litre
- (b) 38.4 litre
- (c) 40 litre
- (d) 41.4 litre
- (e) 48.4 litre

Q71. The average expenditure of Nandu & Bandu on rent is Rs. 2000 while that on travel is Rs. 1500. Nandu spends Rs. 800 on food while Bandu spends Rs. 900. What is average of total expenditure of both? (no one spends on any other thing than given)

- (a) 4400
- (b) 4350
- (c) 4300
- (d) 4750
- (e) 4800

Q72. 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

Q73. What is the probability of drawing 2 red cards from a pack of 52 cards having 2 black cards missing?

- (a) $\frac{13}{49}$
- (b) $\frac{25}{153}$
- (c) $\frac{25}{102}$
- (d) $\frac{69}{221}$
- (e) $\frac{13}{25}$

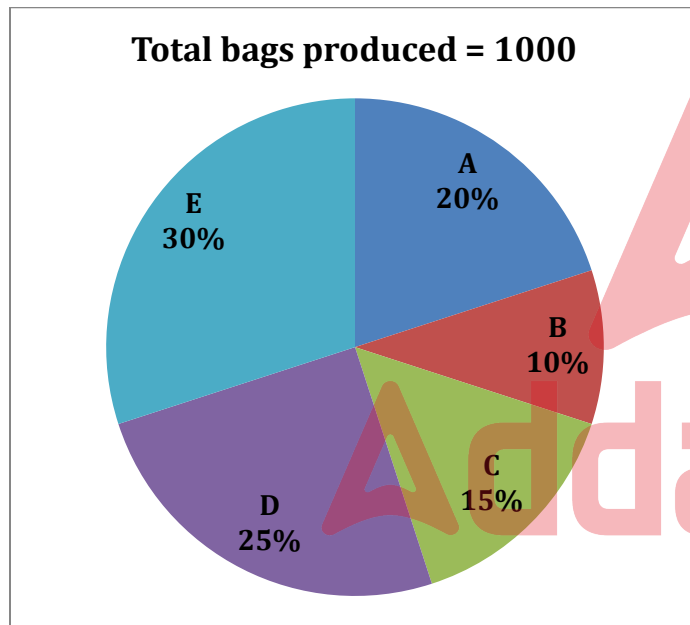
Q74. In a bag there are 2 red balls, X green balls and 3 yellow balls. If two balls are taken out, then its probability to be green is $\frac{2}{9}$. Find number of green balls in the bag.

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

Q75. Kappu & Chandu have their speed in ratio 5:6. If both start from 2 points 110 kms away towards each other. How much distance Chandu had travelled more than Kappu when they meet for first time? (both start at same time)

- (a) 11 kms
- (b) 20 kms
- (c) 10 kms
- (d) Cannot be determined
- (e) None of these

Directions (76-80):- Given pie chart shows the percentage distribution of production of bags by 5 different companies while the table shows the data of ratio of duffel bags to backpacks produced by these 5 companies. Study the charts carefully and answer the questions.



Companies	Duffel Bags : Backpacks
A	1 : 1
B	3 : 2
C	8 : 7
D	12 : 13
E	13 : 17

Q76. How many bags (duffel) were produced by companies B and C together?

- (a) 160
- (b) 130
- (c) 150
- (d) 140
- (e) 120

Q77. What is ratio of backpacks produced by company A & D together to duffel bags produced by company E?

- (a) 22 : 17
- (b) 13 : 23
- (c) 23 : 13
- (d) 17 : 22
- (e) 23 : 17

Q78. Duffel bags produced by company B are what percent of backpacks produced by company D?

- (a) $46\frac{2}{13}\%$
- (b) $48\frac{2}{13}\%$
- (c) $44\frac{2}{13}\%$
- (d) $50\frac{2}{13}\%$
- (e) None of the above

Q79. What is average of backpacks produced by company C and D together?

- (a) 110
- (b) 140
- (c) 80
- (d) 120
- (e) 100

Q80. Total bags produced by company B and E together are what percent of duffel bags produced by company A, D & E together?

- (a) $112\frac{2}{7}\%$
- (b) $114\frac{2}{7}\%$
- (c) $110\frac{2}{7}\%$
- (d) $116\frac{2}{7}\%$
- (e) $118\frac{2}{7}\%$

Q81. What will be the time taken by Rahul to cover the same distance which is covered by Abhishek in 5 hours if ratio of speed of Abhishek and Rahul is 6 : 5?

- (a) 4 hrs
- (b) 5 hrs
- (c) 6 hrs
- (d) 7 hrs
- (e) 3 hrs

Q82. What is the interest earned by a leader on 10000 Rupees for the period of 2 years at the rate of 12.5% S.I.

- (a) 2000 Rs.
- (b) 2500 Rs.
- (c) 3000 Rs.
- (d) 3500 Rs.
- (e) 1500 Rs.

Q83. In how many days A alone can complete the work if A and B together can complete the work in 5 days and B alone can complete the work in 10 days.

- (a) 7 days
- (b) 8 days
- (c) 10 days
- (d) 15 days
- (e) 9 days

Q84. In a mixture of Milk and water, 25 litres of water is added due to which the ratio of milk and water becomes from 4:5 to 2:5. Find the initial quantity of Mixture.

- (a) 40
- (b) 45
- (c) 50
- (d) 55
- (e) 35

Q85. In a committee of 20 members, the average age is 25 years. The average age of first 18 members is 24 years. What will be the average age of last 2 members?

- (a) 32
- (b) 36
- (c) 38
- (d) 34
- (e) 30

Q86. A invested 25000 and B invested 75000 in a business and Ratio of time in which they invest is 7: 4. If the difference between their profit is 500 Rs, then what is the total profit?

- (a) 1800
- (b) 2000
- (c) 1900
- (d) 1700
- (e) 2100

Q87. If the circumference of circle is 88 cm and ratio of radius of circle to side of square is 1 : 2 then what will be the ratio of area of circle to area of square.

- (a) 14 : 11
- (b) 11 : 14
- (c) 13 : 14
- (d) 11 : 16
- (e) 16 : 13

Q88. A bag contains 3 red, 4 blue and 3 green balls. If 2 balls are drawn at random then what is the probability that none is green.

- (a) 6/11
- (b) 8/15
- (c) 11/15
- (d) 7/15
- (e) 9/11

Q89. There are 2 inlet pipes and 1 outlet pipe assigned to fill a tank. If inlet pipe 1 and inlet pipe 2 can fill the tank in 5 hrs and 10 hours respectively and outlet pipe can empty the tank in 15 hrs, then what will be time taken by all three pipes together to fill the tank?

- (a) 20/7 hours
- (b) 30/7 hours
- (c) 15/4 hours
- (d) 7 hours
- (e) 9 hours



Q90. In how many ways can 8 person be arranged in a row such that 4 person always sit together in a fix pattern.

- (a) 8400
- (b) 40320
- (c) 576
- (d) 2880
- (e) None of these

Q91. Amit and Deepak started a business with initial investments in the ratio of 3:1 respectively. At the end of 8 months from start of the business, Amit left. If Deepak received Rs 8000 as his share of the annual profit, then find what was annual profit?

- (a) Rs 20000
- (b) Rs 28000
- (c) Rs 24000
- (d) Rs 32000
- (e) Rs 16000

Q92. P and Q can complete a given task in 24 days working together. If efficiencies of P and Q are in the ratio of 3:2 respectively, then in how many days can Q alone complete the same work?(in days)

- (a) 60
- (b) 45
- (c) 30
- (d) 72
- (e) 54

Q93. Shikhar deposited Rs 15000 in a scheme for 2 yrs which offers compound interest at the rate of 10 %. Due to some emergency, he withdrew 12000 at the end of 1st year. How much amount he will get at the end of 2nd year?

- (a) Rs 4600
- (b) Rs 5450
- (c) Rs 4950
- (d) Rs 5600
- (e) Rs 5870

Q94. Aakash and Vikash invested Rs(x+2000) and Rs(x+3000) respectively in a partnership. If profit at the end of the year is Rs 28000 and value of Vikash's share is Rs 16000, what is the value of x?(in Rs)

- (a) 1500
- (b) 1000
- (c) 2000
- (d) 500
- (e) 1200

Q95. 5 yrs hence, the age of shivam increased by 20% and 6 yrs ago the age of Ayush was 25% less than his present age. What is the sum of the ages of shivam and Ayush, 8 yrs hence?

- (a) 54 yrs
- (b) 60 yrs
- (c) 65 yrs
- (d) 56 yrs
- (e) 69 yrs

Q96. Ravi deposited Rs 15000 in a scheme which offers compound interest at the rate of 15% per annum for 2 yrs. If due to some emergency, he withdrew 10000 rs at the end of 1st yr. What amount will ravi get at the end of 2nd year?

- (a) Rs 8337.5
- (b) Rs 8625
- (c) Rs 8725.5
- (d) Rs 9245.5
- (e) Rs 8845

Q97. The ratio of the volume of the cylinder to that of a cone having same heights is 27: 36. If the sum of the radii of cylinder and cone is 45 cm, then what is the area of rectangle whose sides are equal to the radii of cylinder and cone?

- (a) 450 cm²
- (b) 360 cm²
- (c) 480 cm²
- (d) 540 cm²
- (e) 420 cm²

Q98. P can do a piece of work alone in 30 days. If P and Q together can do $\frac{2}{3}$ of same work in 8 days, the find in how many days Q alone can complete $\frac{3}{4}$ of the same work?

- (a) 24 days
- (b) 18 days
- (c) 12 days
- (d) 15 days
- (e) None of these

Q99. A pipe can fill a tank in 4 hr but due to a leak it takes 6 hrs to completely fill up the tank. If the pipe is closed, the leak will empty 55 litre in 4 hr, what is the capacity of the tank?

- (a) 175 litre
- (b) 155 litre
- (c) 165 litre
- (d) 145 litre
- (e) 135 litre

Q100. A boat which takes 6 hr to travel 105 km in still water, goes 364 km in upstream and return back to the initial point. If rate of stream is $\frac{9}{26}$ th of upstream speed of boat, then find how much approximate time did it take in the entire journey?

- (a) 48 hrs
- (b) 40 hrs
- (c) 52 hrs
- (d) 45 hrs
- (e) 56 hrs

(Solutions)

S1. Ans.(b)

Sol. Pattern is

$$\begin{aligned} 0.5 \times (2 - 0) &= 1 \\ 1 \times (2 - 0.5) &= 1.5 \\ 1.5 \times (2 - 1) &= 1.5 \\ 1.5 \times (2 - 1.5) &= 0.75 \\ 0.75 \times (2 - 2) &= 0 \end{aligned}$$

S2. Ans.(d)

Sol. Pattern is

$$\begin{aligned} 5 \times 3 &= 15 \\ 15 \times 3 &= 45 \\ 45 \times 3 &= 135 \\ 135 \times 3 &= 405 \\ 405 \times 3 &= 1215 \end{aligned}$$

S3. Ans.(e)

Sol. Pattern is

$$\begin{aligned} 90 + 6 &= 96; \quad 96 + 6 = 102 \\ 102 + 6 &= 108; \quad 108 + 6 = 114 \\ 114 + 6 &= 120 \end{aligned}$$

S4. Ans.(a)

Sol. Pattern is

$$\begin{aligned} 389 - (9 + 0) &= 380 \\ 380 - (9 + 1) &= 370 \\ 370 - (9 + 2) &= 359 \\ 359 - (9 + 3) &= 347 \\ 347 - (9 + 4) &= 334 \end{aligned}$$

S5. Ans.(b)

Sol. Pattern is addition of two no.

$$\begin{aligned} 1 + 2 &= 3 \\ 3 + 2 &= 5 \\ 5 + 3 &= 8 \\ 8 + 5 &= 13 \\ 13 + 8 &= 21 \\ 21 + 13 &= 34 \end{aligned}$$

S6. Ans.(c)

$$\text{Sol. } \left(\frac{4^4 \text{ of } 25}{48} \right) \div \left(\frac{5}{4} \text{ of } 32 + \frac{3}{7} \text{ of } 21 \right) = ? \text{ of } \frac{1}{49}$$

$$\begin{aligned} \left(\frac{24}{5} \times \frac{25}{48} \right) \div (40 + 9) &= ? \times \frac{1}{49} \\ ? &= 49 \times \frac{5}{98} = \frac{5}{2} = 2.5 \end{aligned}$$

S7. Ans.(b)

$$\text{Sol. } \sqrt{?} \text{ of } 6 + 20\% \text{ of } 95 = \frac{1}{2} \text{ of } 62$$

$$\begin{aligned} \sqrt{?} \text{ of } 6 &= \frac{62}{2} - \frac{20}{100} \times 95 = 12 \\ ? &= 2^2 = 4 \end{aligned}$$

S8. Ans.(e)

$$\text{Sol. } \left(\frac{5}{3} \text{ of } 6 \frac{3}{5} \text{ of } \frac{9}{11} \right) + ?^2 = 45$$

$$\begin{aligned} \left(\frac{5}{3} \times \frac{33}{5} \times \frac{9}{11} \right) + ?^2 &= 45 \\ ?^2 &= 36 \\ ? &= 6 \end{aligned}$$

S9. Ans.(a)

$$\text{Sol. } \left(\frac{4}{7} \times \frac{14}{5} \div 2 \right) - \left(\frac{3}{10} \text{ of } ? \right) = \frac{4}{5} - 3$$

$$\begin{aligned} \left(\frac{4}{7} \times \frac{14}{5} \times \frac{1}{2} \right) - \left(\frac{3}{10} \times ? \right) &= -\frac{11}{5} \\ \frac{4}{5} - \frac{3}{10} ? &= -\frac{11}{5} \\ ? &= 10 \end{aligned}$$

S10. Ans.(c)

$$\text{Sol. } 4 \frac{4}{5} + 2 \frac{1}{15} - \frac{27}{5} = 2 \frac{1}{5} \div 3 \times ?$$

$$\begin{aligned} \frac{24}{5} + \frac{31}{15} - \frac{27}{5} &= \frac{11}{5} \times \frac{1}{3} \times ? \\ \frac{22}{15} &= \frac{11}{15} \times ? \\ ? &= 2 \end{aligned}$$

S11. Ans.(c)**Sol.** Pattern is

$11^2+11=132$

$12^2+12=156$

$13^2+13=182$

$14^2+14=210$

$15^2+15=240$

$16^2+16=272$

$17^2+17=306$

wrong number is 235 which should be replaced with 240

S12. Ans.(a)**Sol.** Pattern is

$$\begin{array}{ccccccccc}
 100 & & 148 & & 220 & & 316 & & 436 & & 580 & & 748 \\
 \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} \\
 +48 & & +72 & & +96 & & +120 & & +144 & & +168 & & \\
 \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} & \underbrace{\hspace{1.5em}} \\
 +24 & & +24 & & +24 & & +24 & & +24 & & +24 & &
 \end{array}$$

wrong number is 752 which should be replaced with 748

S13. Ans.(d)**Sol.** Pattern is

$12 \times 0.5 = 6$

$6 \times 1 = 6$

$6 \times 2 = 12$

$12 \times 4 = 48$

$48 \times 8 = 384$

$384 \times 16 = 6144$

wrong number is 382 which should be replaced with 384

S14. Ans.(b)**Sol.** Pattern is

$140 - 3 = 137$

$137 - 6 = 131$

$131 - 9 = 122$

$122 - 12 = 110$

$110 - 15 = 95$

$95 - 18 = 77$

wrong number is 120 which should be replaced with 122

S15. Ans.(c)**Sol.** Pattern is

$16 \times 0.5 + 1 = 9$

$9 \times 1 + 1 = 10$

$10 \times 1.5 + 1 = 16$

$16 \times 2 + 1 = 33$

$33 \times 2.5 + 1 = 83.5$

$83.5 \times 3 + 1 = 251.5$

wrong number is 34 which should be replaced with 33

S16. Ans.(e)

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

$x^2 + 3x + 2x + 6 = 0$

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

$x = -2, -3$

II. $y^2 + 9y + 14 = 0$

$y^2 + 7y + 2y + 14 = 0$

$(y + 2)(y + 7) = 0$

$y = -2, -7$

Clearly, no relation can be established

S17. Ans.(b)

Sol. I. $x^2 - 18x + 45 = 0$

$x^2 - 15x - 3x + 45 = 0$

$(x - 3)(x - 15) = 0$

$x = 3, 15$

II. $y^2 + 12y - 45 = 0$

$y^2 + 15y - 3y - 45 = 0$

$(y - 3)(y + 15) = 0$

$y = 3, -15$

Clearly, $x \geq y$ **S18. Ans.(e)**

Sol. I. $9x^2 + 11x + 2 = 0$

$9x^2 + 9x + 2x + 2 = 0$

$(9x + 2)(x + 1) = 0$

$x = -\frac{2}{9}, -1$

II. $8y^2 + 6y + 1 = 0$

$8y^2 + 4y + 2y + 1 = 0$

$(4y + 1)(2y + 1) = 0$

$y = -\frac{1}{2}, -\frac{1}{4}$

Clearly, no relation can be established

S19. Ans.(c)

Sol. I. $6x^2 + 5x + 1 = 0$

$6x^2 + 3x + 2x + 1 = 0$

$(3x + 1)(2x + 1) = 0$

$x = -\frac{1}{3}, -\frac{1}{2}$

II. $4y^2 - 15y = 4$

$4y^2 - 16y + y - 4 = 0$

$(4y + 1)(y - 4) = 0$

$y = -\frac{1}{4}, 4$

Clearly, $x < y$

S20. Ans.(c)

Sol. $x^2 + 3x = 0$

$x(x + 3) = 0$

$x = 0, -3$

II. $x^2 + y = 10$

$y = 10 - x^2$

if $x = 0, y = 10$

if $x = -3, y = 10 - (-3)^2 = 1$

Clearly, $x < y$ **S21. Ans.(a)**

Sol. $\frac{125.98}{154.03} \times \frac{198.02}{17.99} - \frac{156.05}{101.98} \times \frac{51.03}{78.03} = ?$

$\frac{126}{154} \times \frac{198}{18} - \frac{156}{102} \times \frac{51}{78} \approx ?$

$? \approx 9 - 1 \approx 8$

S22. Ans.(d)

Sol. $80.08\% \text{ of } 349.98 + 45.02\% \text{ of } 799.99 = ?\% \times 255.95$

$80\% \text{ of } 350 + 45\% \text{ of } 800 \approx ?\% \times 256$

$280 + 360 \approx ?\% \times 256$

$? \approx \frac{640}{256} \times 100 = 250$

S23. Ans.(b)

Sol. $\sqrt{1224.99} \div 6.99 = ? - 1799.98$

$\sqrt{1225} \div 7 \approx ? - 1800$

$5 \approx ? - 1800$

$? \approx 1810$

S24. Ans.(e)

Sol. $2744.98 - 1417.99 = ? + 987.98$

$2745 - 1418 \approx ? + 988$

$? \approx 339$

S25. Ans.(c)

Sol. $?^2 = 44.99\% \text{ of } 4500.02 - 24.99\% \text{ of } 3959.98 + 87.01 \times 2.97$

$?^2 \approx 45\% \text{ of } 4500 - 25\% \text{ of } 3960 + 87 \times 3$

$?^2 \approx 1296$

$? \approx 36$

S26. Ans.(c)

Sol. total Samsung mobiles = $2400 + 4400 + 1800 + 2800 = 11400$

S27. Ans.(e)

Sol. required answer = $(2300 + 2500) - (1800 + 2800) = 200$

S28. Ans.(d)

Sol. required % = $\frac{1800}{2700} \times 100 = 66\frac{2}{3}\%$

S29. Ans.(a)

Sol. required ratio = $(2300 + 2500 + 3500) : (2400 + 4400 + 2800) = 83:96$

S30. Ans.(e)

Sol. Nokia (2017) = $\frac{2500-2300}{2300} \times 100 = 8.7\%$

Nokia (2018) = $\frac{3500-2500}{2500} \times 100 = 40\%$

Samsung (2019) = $\frac{2800-1800}{1800} \times 100 = 55.55\%$

Nokia (2019) = $\frac{2700-3500}{3500} \times 100 = 23\%$ (decrease)

Samsung (2017) = $\frac{4400-2400}{2400} \times 100 = 83.33\%$

Clearly, Samsung in 2017 shows maximum production increase

S31. Ans.(d)

Sol. total watches manufactured by Casio, Titan & Sonata = $\frac{20+15+25}{100} \times 1000 = 600$

required average = $\frac{600}{3} = 200$

S32. Ans.(c)

Sol. required ratio = $\frac{10+25}{100} \times 1000 : \frac{20+20}{100} \times 1000 = 7:8$

S33. Ans.(b)

Sol. watches manufactured of Sonata = $\frac{25}{100} \times 1000 = 250$

Watches manufactured of Rado = $\frac{10}{100} \times 1000 = 100$

Required % = $\frac{250-100}{100} \times 100 = 150\%$



S34. Ans.(e)**Sol.** in next year

$$\text{No. of Titan watches manufactured} = \frac{110}{100} \times \frac{15}{100} \times 1000 = 165$$

$$\text{No. of Timex watches manufactured} = \frac{90}{100} \times \frac{10}{100} \times 1000 = 90$$

$$\text{Required difference} = 165 - 90 = 75$$

S35. Ans.(b)

$$\text{Sol. Average no. of watches manufactured} = \frac{1000}{6} = 166.67$$

Watches manufactured

$$\text{Casio} = \frac{20}{100} \times 1000 = 200$$

$$\text{Titan} = \frac{15}{100} \times 1000 = 150$$

$$\text{Sonata} = \frac{25}{100} \times 1000 = 250$$

$$\text{Timex} = \frac{10}{100} \times 1000 = 100$$

$$\text{Fossil} = \frac{20}{100} \times 1000 = 200$$

$$\text{Rado} = \frac{10}{100} \times 1000 = 100$$

Required answer = Casio, Sonata, Fossil = 3

S36. Ans.(c)

$$\text{Sol. amount received by Rohit} = 4000 + \frac{4000 \times 10 \times 2}{100} = \text{Rs. 4800}$$

S37. Ans.(e)

$$\text{Sol. interest amount received by Karan} = \frac{8000 \times 10 \times 2}{100} = \text{Rs. 1600}$$

$$\text{Interest amount received by Mahesh} = \frac{6000 \times 12 \times 4}{100} = \text{Rs. 2880}$$

$$\text{Required \%} = \frac{2880 - 1600}{1600} \times 100 = 80\%$$

S38. Ans.(d)

$$\text{Sol. total interest amount received by Anurag \& Rohit together} = \frac{4000 \times 16 \times 4}{100} + \frac{4000 \times 10 \times 2}{100} = \text{Rs. 3360}$$

S39. Ans.(a)

$$\text{Sol. interest received by Karan (SI)} = \frac{8000 \times 10 \times 2}{100} = \text{Rs. 1600}$$

$$\text{Interest received by Karan (CI)} = 8000 \left(1 + \frac{10}{100} \right)^2 - 8000 = \text{Rs. 1680}$$

$$\text{Required value} = 1680 - 1600 = \text{Rs. 80}$$

S40. Ans.(e)**Sol.** Interest received by Karan

$$= \frac{8000 \times 10 \times 2}{100} = \text{Rs. 1600}$$

$$\text{Interest received by Anurag} = \frac{4000 \times 16 \times 4}{100} = \text{Rs. 2560}$$

Interest received by Mahesh

$$= \frac{6000 \times 12 \times 4}{100} = \text{Rs. 2880}$$

$$\text{Interest received by Rohit} = \frac{4000 \times 10 \times 2}{100} = \text{Rs. 800}$$

Clearly, Mahesh had received highest interest

Solutions (41-45): Let the number of pen and pencil sold by A be 7x and 5x respectively and that of by B be 3y and 2y respectively.

Total numbers of pen and pencil sold by A and B = 7x+5x+3y+2y

$$12x + 5y = 874 - 128$$

$$12x + 5y = 746$$

Now,

$$7x = 3y \times \frac{110}{100}$$

$$x = \frac{33y}{70}$$

$$12x + 5y = 746$$

$$12 \times \frac{33y}{70} + 5y = 746$$

$$396y + 350y = 746 \times 70$$

$$y = \frac{746 \times 70}{746} = 70$$

$$x = \frac{33y}{70} = \frac{33 \times 70}{70} = 33$$

	A	B	C
Pen	7x=7×33 =231	3y=3×70 =210	5z= $\frac{128}{8}$ ×5 =80
Pencil	5x=5×33 =165	2y=2×70 =140	3z= $\frac{128}{8}$ ×3 =48

S41. Ans.(c)**Sol.** Total amount received by selling all pen by A = 231 × 20 = Rs 4620

Total amount received by selling all pencil by A = 165 × 10 = Rs 1650

Total amount earned by selling all pen & pencil by A = 4620 + 1650 = Rs 6270

S42. Ans.(b)**Sol.** Total pens sold by A and B together

$$= 231 + 210 = 441$$

Total pencil sold by B and C together = 140 + 48 = 188

$$\text{Required ratio} = \frac{441}{188} = 441:188$$

S43. Ans.(d)

$$\text{Required average} = \frac{231+210+80}{3} = \frac{521}{3} = 173.67$$

S44. Ans.(a)

number of pens sold by stationary B after increase of 20 % = $210 \times \frac{120}{100} = 252$

number of pencil sold by stationary C after increase of 25 % = $48 \times \frac{125}{100} = 60$

Required sum of pen and pencil = $252 + 60 = 312$

S45. Ans.(c)

Total pens sold by A ,B and C together = $231 + 210 + 80 = 521$

Total pencils sold by A ,B and C together = $165 + 140 + 48 = 353$

Required difference = $521 - 353 = 168$

S46. Ans.(d)

Sol. Statement I: $\frac{50}{100}a = \frac{25}{100}b \Rightarrow \frac{a}{b} = \frac{1}{2}$

Statement II: $\frac{30}{100}a = \frac{75}{100}b \Rightarrow \frac{a}{b} = \frac{5}{2}$

Clearly, either I or II is sufficient

S47. Ans.(e)

Sol. From Statement I & II,

$$\text{Total passengers} = \frac{100}{36} \times 45 = 125$$

So, both statements are required to answer.

S48. Ans.(c)

Sol. Statement I: P's age + R's age = 24 years

Statement II: R's age < P's age

Since age of P cannot be determined even from both statements.

S49. Ans.(a)

Sol. Statement I: area of floor = $\frac{10000}{100} = 100$ sq. m.

Statement II: total painting cost is not given so area cannot be determined

Only, Statement I is sufficient

S50. Ans.(b)

Sol. Statement I: perimeter of square = $4 \times 5 = 20$ cm = perimeter of right angle triangle, area of right angle triangle cannot be determined

Statement II: Length of Hypotenuse = 5 cm

Using triplets, only possible combination is (3,4,5)

$$\text{Required Area} = \frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2$$

S51. 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 = $360 - 291 = 69$

S52. 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

$$= \frac{468}{650} \times 100 = 72\%$$

S53. 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 = $499 - 428 = 71$

S54. Ans.(c)

Sol. marks scored in physics subject by all the given five students together = $150 \times \frac{66}{100} + 150$

$$\times \frac{64}{100} + 150 \times \frac{72}{100} + 150 \times \frac{76}{100} + 150 \times \frac{82}{100}$$

$$= 99 + 96 + 108 + 114 + 123 = 540$$

Average marks scored in physics = $\frac{540}{5} = 108$

S55. 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 = $150 \times \frac{70}{100} + 150 \times \frac{50}{100} + 150 \times \frac{80}{100}$
 $= 105 + 75 + 120$
 $= 300$

Required percentage = $\frac{210}{300} \times 100$
 $= 70\%$

S56. Ans.(d)

Sol. Let present age of Suresh's son be x yrs

Present age of Suresh = 6x

$$\frac{6x+13}{x+13} = \frac{11}{4}$$

$$24x+52=11x+143$$

$$13x=91$$

$$x=7$$

Present age of suresh = $6x = 42$ yrs

S57. Ans.(b)

Sol. Let cost price of the item be 100x

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

$$= 160x$$

Selling price of items after giving discounts = $160x$

$$\times \frac{90}{100} \times \frac{85}{100}$$

$$= 122.4x$$

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

$$= 22.4\%$$

S58. Ans.(a)

Relative speed = $90 - 60 = 30$ km/hr

Distance travelled by Shatabdi exp. In 2 hrs

$$= 60 \times 2 = 120 \text{ km}$$

Time required to cover 120 km by duronto

$$\text{exp.} = \frac{120}{30} = 4 \text{ hr}$$

Distance travelled by duronto exp. In 4 hrs = 90

$$\times 4 = 360 \text{ km}$$

S59. Ans.(e)

Let speed of stream be u km/hr

According to the question,

$$\frac{54}{15+u} + \frac{54}{15-u} = 7.5$$

$$\frac{18}{15+u} + \frac{18}{15-u} = \frac{5}{2}$$

$$\frac{18(15-u+15+u)}{(15+u)(15-u)} = \frac{5}{2}$$

$$216 = 225 - u^2$$

$$u^2 = 9$$

$$u = 3 \text{ km/hr}$$

Time required to travel 48 km in

$$\text{upstream} = \frac{48}{15-3} = \frac{48}{12} = 4 \text{ hrs}$$

S60. Ans.(a)

In basket, there are 8 red balls and 6 green balls

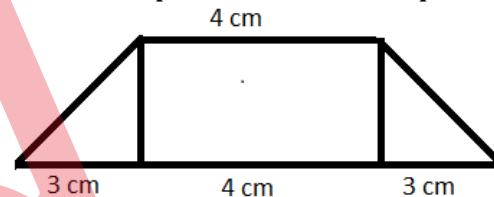
Probability (both being either red or blue) = $\frac{{}^8C_2 + {}^6C_2}{{}^{14}C_2}$

$$= \frac{28+15}{91} = \frac{43}{91}$$

S61. Ans.(d)

Sol. side of square = $\sqrt{25} = 5$ cm

Since non-parallel sides are equal,



Height of trapezium = $\sqrt{5^2 - 3^2} = 4$ cm

Area of trapezium = $\frac{1}{2} (\text{base1} + \text{base2}) \times \text{height}$

$$\frac{1}{2} \times (4 + 10) \times 4 = 28 \text{ cm}^2$$

S62. Ans.(c)

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

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

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

$$R = 20\%$$

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

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

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

S63. Ans.(b)

Sol.

	Time (days)	Work (units)	Efficiency (units/day)
A + B	12		25
A	25	300	12
B			$25 - 12 = 13$

Half work done by A & half by B

$$\text{Required time} = \frac{150}{12} + \frac{150}{13} = \frac{625}{26} = 24 \frac{1}{26} \text{ days}$$

S64. Ans.(b)**Sol.** let marks scored by Ravi = x

$$\text{Marks of Ronit} = \frac{90}{100}x = 0.9x$$

$$\text{Marks of Raj} = \frac{130}{100} \times 0.9x = 1.17x$$

$$\text{Marks of Jai} = \frac{120}{100} \times 1.17x = 1.404x$$

$$\text{Required \%} = \frac{1.404x}{x} \times 100 = 140.4\%$$

S65. Ans.(e)**Sol.** in mixture I juice : water

$$= \frac{120}{100} \times 100 : 100 = 6 : 5$$

Mixtures are mixed in ratio 3 : 4

In final mixture,

$$\frac{\text{juice}}{\text{water}} = \frac{6 \times 3 + 5 \times 4}{5 \times 3 + 6 \times 4} = 38 : 39$$

S66. Ans.(b)**Sol.** Let the length(l) and breadth(b) of the rectangle be 20x and 10y respectively.

$$\text{Area of the rectangle} = l \times b = 20x \times 10y = 200xy$$

When length and breadth of the rectangle is increased by 20% and 10% respectively,

then new length and new breadth of rectangle will be 24x and 11y respectively

$$\text{new area of rectangle} = 24x \times 11y = 264xy$$

$$\% \text{ increase in area of the rectangle} = \frac{264xy - 200xy}{200xy} \times$$

$$100$$

$$= 32\%$$

S67. Ans.(c)**Sol.** Here, Pipe A alone and Pipe B alone can fill the tank in 20 min and 30 min respectively and Pipe C alone can empty the tank in 10 min

Then, total work = 60 units

Therefore, efficiency of pipe A and pipe B are 3 units/min and 2 units/min respectively and efficiency of pipe C is 6 units/min

Total efficiency when all 3 pipes are opened simultaneously = 3 + 2 - 6 = -1 unit/min

Total time taken to empty the tank if the tank is completely full = $\frac{60}{-1}$

$$= 60 \text{ min} \quad (\text{as total efficiency of all 3 pipes is } -1)$$

S68. Ans.(a)

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)

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

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

$$= \text{Rs } 1856.4$$

S69. Ans.(a)

There are 7 green, 6 blue and 5 red balls in a basket

Required probability (both being green or red) =

$$\frac{{}^7C_2 + {}^5C_2}{{}^{18}C_2}$$

$$= \frac{31}{153}$$

S70. Ans.(b)

The container is full of 75 litre milk

$$\text{Required quantity of milk} = 75 \left(1 - \frac{15}{75}\right)^3$$

$$= 75 \left(1 - \frac{1}{5}\right)^3$$

$$= 38.4 \text{ litres}$$

S71. Ans.(b)**Sol.** required average

$$= \frac{2000 \times 2 + 1500 \times 2 + 800 + 900}{2} = \text{Rs. } 4350$$



S72. Ans.(d)**Sol.** let cost price of purse be Rs 100x

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

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

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

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

But shopkeeper offered 10% extra discount

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

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

S73. Ans.(a)

$$\text{Sol. required probability} = \frac{{}^{26}C_2}{{}^{50}C_2} = \frac{26 \times 25}{50 \times 49} = \frac{13}{49}$$

S74. Ans.(c)**Sol.** Probability of 2 balls selected are green

$$= \frac{{}^XC_2}{{}^{5+X}C_2} = \frac{2}{9}$$

$$\frac{x!}{2!(x-2)!} = \frac{2}{9}$$

$$\frac{x(x-1)}{(x+5)(x+4)} = \frac{2}{9}$$

$$9x^2 - 9x = 2x^2 + 18x + 40$$

$$7x^2 - 27x - 40 = 0$$

$$7x^2 - 35x + 8x - 40 = 0$$

$$7x(x-5) + 8(x-5) = 0$$

$$x = \frac{-8}{7}, 5$$

As number of balls can't be in negative. So, $x=5$ **S75. Ans.(c)****Sol.** distance covered is directly proportional to speed

When they start at same time, they will cover distance in ratio of their speeds

Let distance covered by Kappu & Chandu be 5x km & 6x km respectively

$$\text{Required answer} = \frac{6x-5x}{6x+5x} \times 110 = 10 \text{ kms}$$

S76. Ans.(d)**Sol.** required answer

$$= 1000 \times \left(\frac{10}{100} \times \frac{3}{5} + \frac{15}{100} \times \frac{8}{15} \right) = 140$$

S77. Ans.(c)

$$\text{Sol. required ratio} = \left(\frac{20}{100} \times 1000 \times \frac{1}{2} \right) +$$

$$\left(\frac{25}{100} \times 1000 \times \frac{13}{25} \right) : \left(\frac{30}{100} \times 1000 \times \frac{13}{30} \right) = 23 : 13$$

S78. Ans.(a)**Sol.** duffel bags produced by company B

$$= \frac{10}{100} \times 1000 \times \frac{3}{5} = 60$$

$$\text{Backpacks produced by company D} = \frac{25}{100} \times 1000 \times$$

$$\frac{13}{25} = 130$$

$$\text{Required \%} = \frac{60}{130} \times 100 = 46 \frac{2}{13} \%$$

S79. Ans.(e)**Sol.** required average

$$= \frac{\frac{15}{100} \times 1000 \times \frac{7}{15} + \frac{25}{100} \times 1000 \times \frac{13}{25}}{2} = \frac{200}{2} = 100$$

S80. Ans.(b)**Sol.** bags produced by company B & E together

$$= \frac{10+30}{100} \times 1000 = 400$$

Duffel bags produced by company A, D & E

$$\text{together} = \frac{20}{100} \times 1000 \times \frac{1}{2} + \frac{25}{100} \times 1000 \times \frac{12}{25} +$$

$$\frac{30}{100} \times 1000 \times \frac{13}{30} = 350$$

$$\text{Required \%} = \frac{400}{350} \times 100 = 114 \frac{2}{7} \%$$

S81. Ans.(c)**Sol.** Let the speed of Abhishek and Rahul be 6x and 5x respectively.

$$\text{Required time} = \frac{6x \times 5}{5x} = 6 \text{ hours.}$$

S82. Ans.(b)

$$\text{Sol. S.I.} = \frac{P \times R \times T}{100}$$

$$= \frac{10000 \times 12.5 \times 2}{100}$$

$$= 2500 \text{ Rs.}$$

S83. Ans.(c)

$$\text{Sol. 1 day work of A} = \frac{1}{5} - \frac{1}{10} = \frac{1}{10} \text{ Units.}$$

$$\text{Required time} = 10 \text{ days.}$$

S84. Ans.(b)**Sol.** Let initial quantity of milk and water be 4x lit & 5x lit respectively.

A.T.Q,

$$\frac{4x}{5x+25} = \frac{2}{5}$$

$$20x = 10x + 50$$

$$X = 5$$

$$\text{Initial quantity of mixture} = 9x = 45 \text{ lit.}$$

S85. Ans.(d)

Sol. Sum of ages of all the 20 members = $20 \times 25 = 500$

Sum of ages of first 18 members = $18 \times 24 = 432$

Sum of ages of last 2 members = $500 - 432 = 68$

$$\therefore \text{Average age} = \frac{68}{2} = 34$$

S86. Ans.(c)**Sol.**

$$\begin{array}{cc} A & B \\ 25000 & : & 75000 \end{array}$$

\therefore Ratio of investment = 1 : 3

Ratio of time = 7 : 4

So, ratio of profit = $(1 \times 7) : (3 \times 4) = 7 : 12$

$$\text{Total profit} = \frac{19}{5} \times 500 = \text{Rs. } 1900$$

S87. Ans.(b)**Sol.** A.T.Q,

$$2 \times \frac{22}{7} \times r = 88$$

$$\therefore r = 14 \text{ cm}$$

So, side of square = 28 cm

$$\begin{aligned} \text{Required ratio} &= \frac{22}{7} \times 14 \times 14 : 28 \times 28 \\ &= 11 : 14 \end{aligned}$$

S88. Ans.(d)

$$\text{Sol. Required probability} = \frac{{}^7C_2}{{}^{10}C_2} \Rightarrow \frac{7}{15}$$

S89. Ans.(b)**Sol.** A.T.Q,

Tank filled by all 3 pipes together in 1 hour

$$= \frac{1}{5} + \frac{1}{10} - \frac{1}{15} = \frac{7}{30} \text{ units.}$$

Time taken by all 3 pipes together to fill the tank

$$= \frac{30}{7} \text{ hours.}$$

S90. Ans.(a)

Sol. Since 4 person sit with each other and in a fix pattern so they are to be treated as one and there will be no arrangement for them so number of ways that all 8 can sit = $5! \times 70$
= 8400

S91. Ans.(c)**Sol.**

	Amit	:	Deepak
Initial investment	3	:	1
	3×8	:	1×12
	24	:	12
	2	:	1

Now, 1 unit = Rs 8000

$$\text{So, } (2+1) \text{ units} = 3 \text{ units} = 3 \times 8000 = \text{Rs } 24000$$

S92. Ans.(a)**Sol.**

	P	:	Q
Efficiency	3	:	2

$$\begin{aligned} \text{Total work} &= (3+2) \times 24 \\ &= 120 \text{ units} \end{aligned}$$

So, Q alone can complete the same work in = $\frac{120}{2}$
= 60 days

S93. Ans.(c)

Sol. Total amount that shikhar have at the end of 1st year = $\text{Rs}(15000 \times 1.1) = \text{Rs } 16500$

Amount withdrawn at the end of 1st year = Rs 12000

Principal amount for 2nd year on which shikhar will get interest = $\text{Rs}(16500 - 12000) = \text{Rs } 4500$

Hence, total amount shikhar will get at the end of 2nd year = $\text{Rs } (4500 \times 1.1) = \text{Rs } 4950$

S94. Ans.(b)

Sol. Ratio in which profit is distributed between Aakash and Vikash = $(x + 2000) : (x + 3000)$

$$\begin{aligned} \frac{x+2000}{x+3000} &= \frac{28000-16000}{16000} \\ &\Rightarrow \frac{x+2000}{x+3000} = \frac{3}{4} \end{aligned}$$

$$4x + 8000 = 3x + 9000$$

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

S95. Ans.(c)

Sol. Let present age of shivam and ayush be 'p' yrs and 'q' yrs respectively

$$(p+5) = \frac{120}{100} \times p$$

$$(p+5) = \frac{6p}{5}$$

$$p = 25$$

$$\text{Also, } (q-6) = \left(\frac{75}{100}\right) \times q$$

$$q-6 = \frac{3q}{4} \Rightarrow q = 24$$

Sum of ages of shivam and ayush, 8 yrs hence

$$= 25 + 8 + 24 + 8 = 65 \text{ yrs}$$

S96. Ans.(a)

Total amount at the end of 1st year

$$= 15000 + 15000 \times \frac{15}{100}$$

$$= \text{Rs } 17250$$

Due to some emergency, he withdrew 10000 rs from the scheme

$$\text{Amount left in the scheme} = 17250 - 10000$$

$$= \text{Rs } 7250$$

Total amount ravi got at the end of 2nd year

$$= 7250 + 7250 \times \frac{15}{100} = \text{Rs } 8337.5$$

S97. Ans.(a)

Sol. Let the radius of the cylinder and cone be 'r' cm and 'R' cm respectively and let their height be h cm respectively

$$\text{Given, } \pi r^2 h : \frac{1}{3} \pi R^2 h = 27 : 36$$

$$3r^2 : R^2 = 27 : 36$$

$$r^2 : R^2 = 9 : 36$$

$$r : R = 3 : 6$$

$$r = \frac{3}{9} \times 45 = 15 \text{ cm}$$

$$R = 45 - 15 = 30 \text{ cm}$$

Therefore, Area of rectangle = $R \times r$

$$= 30 \times 15 = 450 \text{ cm}^2$$

S98. Ans.(d)

Sol. P and Q together can complete $\frac{2}{3}$ rd of the total work in 8 days

Total work can be completed in 12 days by P and Q working together

Let the time taken by Q alone to complete the work be 'b' days

$$\frac{1}{30} + \frac{1}{b} = \frac{1}{12}$$

$$\frac{1}{b} = \frac{1}{12} - \frac{1}{30}$$

$$\frac{1}{b} = \frac{5-2}{60}$$

$$\frac{1}{b} = \frac{3}{60}$$

Q alone can complete the total work in 20 days

Time taken to complete $\frac{3}{4}$ th work by Q alone

$$= \frac{3}{4} \times 20 = 15 \text{ days}$$

S99. Ans.(c)

Sol. In 2 hrs, pipe can fill $\frac{1}{2}$ part of the tank

In 2 hrs, the pipe and the leakage can fill $\frac{1}{3}$ part of the tank

So, in 2 hr, the leakage can empty $(\frac{1}{2} - \frac{1}{3})$ or $\frac{1}{6}$ part of the tank

In 2 hrs, the leakage will empty $(\frac{55}{2})$ litre

$$(\frac{1}{6}) \text{ of tank} = (\frac{55}{2}) \text{ litre}$$

$$\text{Capacity of the tank} = (\frac{55}{2}) \times 6$$

$$= 165 \text{ litre}$$

S100. Ans.(d)

Sol. In still water, the speed of boat = $\frac{105}{6} = 17.5$ km/hr.

And let the rate of stream be V km/hr

According to the question,

$$\frac{V}{(17.5-V)} = \frac{9}{26}$$

$$26V = 157.5 - 9V$$

$$35V = 157.5$$

$$V = 4.5 \text{ km/hr}$$

Total time taken to travel 364 km roundtrip

$$= \frac{364}{(17.5-4.5)} + \frac{364}{(17.5+4.5)}$$

$$= \frac{364}{13} + \frac{364}{22}$$

$$= 44.54 \text{ hrs}$$

$$= 45 \text{ hrs. (approx.)}$$

