

100+ Important Numerical Ability Questions Pdf for IAF AFCAT II 2022

Q1. A bookseller bought 500 text books for 20,000. He wanted to sell them at a profit so that he get 50 books free. At what profit percent should he sell them?

- (a) 10 %
- (b) 20 %
- (c) 15 %
- (d) 10.5 %

Q2. 20% of a man's salary is paid as rent, 60% are his living expenses and 10% are his savings. If he spends remaining Rs. 30 on the education of his children, find his salary?

- (a) 300
- (b) 900
- (c) 3000
- (d) 9000

Q3. The radius of a sphere and hemisphere are same. The ratio of their total surface area is:

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

Q4. There are 1400 students in a school, 25% of those wear spectacles and $\frac{2}{7}$ of those wearing spectacles are boys. How many girls in the school wear spectacles?

- (a) 250
- (b) 100
- (c) 200
- (d) 300

Q5. A can do $\frac{1}{3}$ rd of a work in 5 days and B can do $\frac{2}{5}$ th of this work in 10 days. Both A and B, together can do the work in

- (a) $7\frac{3}{8}$ days
- (b) $8\frac{4}{5}$ days
- (c) $9\frac{3}{8}$ days
- (d) 10 days

Q6. The marked price of a ceiling fan is Rs. 1200 and the shopkeeper allows a discount of 5 % on it. Then selling price of the fan is

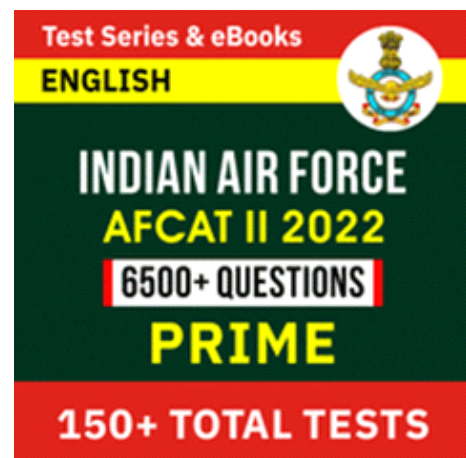
- (a) Rs. 1410
- (b) Rs. 1400
- (c) Rs. 1140
- (d) Rs. 1104

Q7. A train covers a distance in 50 minutes if it runs at a speed of 48 km/hr on an average. The speed at which the train must run to reduce the time of journey to 40 minutes will be-

- (a) 45 km/hr
- (b) 50 km/hr
- (c) 60 km/hr
- (d) 75 km/hr

Q8. A machine cost Rs. 32000 at present. If the value of the machine depreciates at the rate of 5% compounded annually. What will be its value 3 years hence?

- (a) Rs. 23189
- (b) Rs. 24598
- (c) Rs. 25248
- (d) Rs. 27436



Q9. The slant height of a conical mountain is 2.5 km, and the area of its base is 1.54 km^2 . Find the height of the mountain.

- (a) 2.2 km
- (b) 2.4 km
- (c) 3 km
- (d) 3.11 km

Q10. Among the three numbers, the second is twice the first and is also thrice the third. If the average of three numbers is 55, find the largest number.

- (a) 45
- (b) 54
- (c) 63
- (d) 90

Q11. A sum of Rs. 960 is divided among 4 men, 5 women and 8 boys such that the share of a man, a woman and a boy is in the ratio of 5:4:3 respectively. Find the share of a woman.

- (a) Rs. 30
- (b) Rs. 60
- (c) Rs. 90
- (d) Rs. 120

Q12. In a certain school, 20% of students are below 8 years of age. The number of students of 8 years age or above 8 years of age is 48. What is the total number of students in the school?

- (a) 72
- (b) 80
- (c) 60
- (d) 150

Q13. A man took loan a bank at the rate of 12% p.a simple interest. After 3 years he had to pay Rs. 5400 interests only for the period. The principal amount borrowed by him was:

- (a) Rs. 2000
- (b) Rs. 10,000
- (c) Rs. 15,000
- (d) Rs. 20,000

Q14. If a man were to sell his chair for Rs. 720, he would lose 25%. To gain 25% he should sell it for

- (a) Rs. 1,000
- (b) Rs. 1,200
- (c) Rs. 1,960
- (d) Rs. 1,900

Q15. A man on tour travels first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is:

- (a) 35.55 km/hr
- (b) 36 km/hr
- (c) 71.11 km/hr
- (d) 71 km/hr

Q16. The ratio of boys and girls in a school is 3 : 2. When 6 more boys join, this ratio becomes 7 : 4. How many boys are there in the school after new joining?

- (a) 24
- (b) 30
- (c) 42
- (d) None of these

Q17. A man sold two tables at Rs. 1,200 each. On one he gained 20% and on the other he lost 20%. His gain or loss in the whole transaction is

- (a) 1% loss
- (b) 2% loss
- (c) 4% loss
- (d) 1% gain

Q18. The L.C.M. of two numbers is 48. The numbers are in the ratio 2 : 3. Then sum of the number is:

- (a) 28
- (b) 32
- (c) 40
- (d) 64

Q19. A train running at a speed of 194.4 kilometer per hour passes a man walking in opposite direction at 6 metre per second in 15 second. What is the length of the train?

- (a) 600 metre
- (b) 800 metre
- (c) 900 metre
- (d) 100 metre

Q20. Anoop travels first $\frac{1}{3}$ rd of the total distance at the speed of 10 km/hr and the next $\frac{1}{3}$ rd distance at the speed of 20 km/hr and the last $\frac{1}{3}$ rd distance at the speed of 60 km/hr. The average speed of anoop is :

- (a) 15 km/hr
- (b) 18 km/hr
- (c) 25 km/hr
- (d) 30 km/hr

Q21. The ratio of the quantities of an acid and water in a mixture is 1 : 3. If 5 liters of acid is further added to the mixture, the new ratio becomes 1 : 2. The quantity of new mixture in litres is

- (a) 32
- (b) 40
- (c) 42
- (d) 45

Q22. When a number is divided by 234, the remainder obtained is 26. If the same number is divided by 13, then the remainder obtained will be:

- (a) Zero
- (b) 1
- (c) 5
- (d) 4

Q23. P is thrice as efficient as Q and is therefore able to finish a piece of work in 60 days less than Q. Find the time in which Q can complete work individually.

- (a) 90
- (b) 60
- (c) 40
- (d) None of these

Q24. In what ratio must a grocer mix teas at Rs. 60 a kg, and Rs. 65 a kg, so that by selling the mixture at Rs. 68.20 a kg, he may gain 10%?

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

Q25. A man had 100 kgs of sugar, part of which he sold at 7% profit and rest at 17% profit. He gained 10% on the whole. How much did he sell at 7% profit?

- (a) 65 kg
- (b) 35 kg
- (c) 30 kg
- (d) 70 kg

Q26. The price of rice is reduced by 2%. How many kilograms of rice can now be bought for the money which was sufficient to buy 49 kgs of rice earlier?

- (a) 48 kgs.
- (b) 49 kgs.
- (c) 50 kgs.
- (d) 51 kgs.

Q27. A batsman scored 110 runs which included 3 boundaries and 8 sixes. What per cent of his total score, did he make by running between the wickets?

- (a) 45%
- (b) $45\frac{5}{11}\%$
- (c) $54\frac{6}{11}\%$
- (d) 55%

Q28. If both the radius and height of a right circular cone are increased by 20%, its volume will be increased by

- (a) 20%
- (b) 40%
- (c) 60%
- (d) 72.8%

Q29. If the number $2304ab$ is completely divisible by 80 then what will be the value $a + b$?

- (a) 4
- (b) 9
- (c) 6
- (d) 8

Q30. On calculating the H.C.F. of two numbers by division method the last divisor is 75 and quotients from the beginning are 3, 1, 1 and 3. What will be the sum of these two numbers?

- (a) 2400
- (b) 2500
- (c) 825
- (d) None of these

Q31. A work is being completed by a group of 10 men in 12 days. Same work is completed by a group of 10 women in 6 days. In how many days will the work be completed in both the groups work together?

- (a) 4
- (b) 6
- (c) 9
- (d) 18

Q32. A is thrice efficient than B and takes 60 days less than B to complete a work. In how many days can they complete this work if they work together?

- (a) 20 days
- (b) $22\frac{1}{2}$ days
- (c) 25 days
- (d) 30 days

Q33. Mohan and Sohan started a business. Mohan invested Rs. 20,000 for 6 months. Sohan invested for one year. At the end of a year Mohan got Rs. 6,000 in the total profit of Rs. 9,000. How much did Sohan invest initially?

- (a) Rs. 10,000
- (b) Rs. 5,000
- (c) Rs. 12,000
- (d) Rs. 8,000

Q34. A wall clock takes 22 seconds to strike the number of 11 hours at 12 o'clock. The time will it take to strike the number of hours at 6 o'clock is

- (a) 12 sec
- (b) 10 sec
- (c) 11 sec
- (d) 9.16 sec

Q35. A person takes 3 hours 45 minutes to row his boat 15 km downstream in a river and in opposite direction it takes 2 hours 30 minutes to row 5 km. What will be the speed of the stream?

- (a) 0.5 km/h
- (b) 2 km/h
- (c) 1 km/h
- (d) 3 km/h

Q36. The average consumption of rice per person per month in a family of 8 adults and some kids is 10.8 kg, where the average consumption per person for adult is 15 kg and for kids is 6 kg. What is the number of kids in the family?

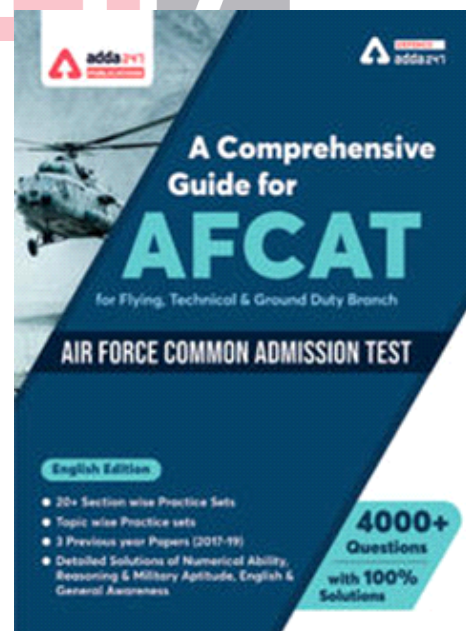
- (a) 8
- (b) 6
- (c) 7
- (d) 9

Q37. A merchant purchases a wrist watch for Rs. 450 and fixes its list price in such a way that after allowing a discount of 10%, he earns a profit of 20%. Then the list price of the watch is

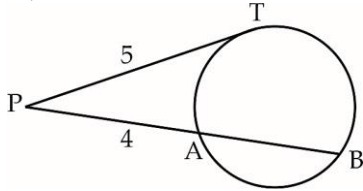
- (a) Rs. 650
- (b) Rs. 700
- (c) Rs. 550
- (d) Rs. 600

Q38. Kamal can do a piece of work in 15 days. Bimal is 50 per cent more efficient than Kamal in doing the work. In how many days will Bimal do that work?

- (a) 14 days
- (b) 12 days
- (c) 10 days
- (d) $10\frac{1}{2}$ days



Q39. In the given figure, PAB is a secant and PT is a tangent to the circle from P. If $PT = 5$ cm, $PA = 4$ cm and $AB = x$ cm, then x is:



- (a) $\frac{4}{9}$ cm
- (b) $\frac{2}{3}$ cm
- (c) $\frac{9}{4}$ cm
- (d) 5 cm

Q40. In trapezium ABCD, $AB \parallel CD$ and $AB = 2 CD$. Its diagonals intersect at O. If the area of $\Delta AOB = 84$ cm^2 , then the area of ΔCOD is equal to

- (a) 21 cm^2
- (b) 72 cm^2
- (c) 42 cm^2
- (d) 26 cm^2

Q41. The average of runs scored by a player in 10 innings is 50. How many runs should he score in the 11th innings so that his average is increased by 2 runs?

- (a) 80 runs
- (b) 72 runs
- (c) 60 runs
- (d) 54 runs

Q42. Twinkle bought 30 kg of wheat at the rate of Rs. 9.50 per kg of wheat and the same amount of wheat at the rate of Rs. 8.50 per kg and mixed them. She sold the mixture at the rate of Rs. 8.90 per kg. Her total profit or loss in the transaction was :

- (a) Rs. 2 loss
- (b) Rs. 2 profit
- (c) Rs. 6 loss
- (d) Rs. 6 profit

Q43. A certain number of persons can complete a piece of work in 55 days. If there were 6 persons more, the work could be finished in 11 days less. How many persons were originally there?

- (a) 17
- (b) 24
- (c) 30
- (d) 22

Q44. Points 'A' and 'B' are 70 km apart on a highway and two cars start at the same time. If they travel in the same direction, they meet in 7 hours, but if they travel towards each other they meet in one hour. Find the speed of the two cars (in km/hr).

- (a) 20, 30
- (b) 40, 30
- (c) 30, 50
- (d) 20, 40

Q45. The price of coal is increased by 20%, By what per cent a family should decrease its consumption so that expenditure remains same?

- (a) 40%
- (b) $46\frac{2}{3}\%$
- (c) 20%
- (d) $16\frac{2}{3}\%$

Q46. In an examination, 19% students fail in Mathematics and 10% students fail in English. If 7% of all students fail in both subjects, then the percentage of students passed in both subjects is :

- (a) 36% of all students
- (b) 64% of all students
- (c) 71% of all students
- (d) 78% of all students

Q47. Rakesh buys a watch for Rs. 600 and sells it to Saravana at 10% profit. Saravana sells it to Ajay at 5% profit. For how much does Saravana sell the watch to Ajay?

- (a) Rs. 650
- (b) Rs. 679
- (c) Rs. 693
- (d) Rs. 710

Q48. A train covers a distance of 10 km in 12 minutes. If its speed is decreased by 5 km/hr, find the time taken to cover the same distance.

- (a) 10 minutes
- (b) 11 minutes 20 second
- (c) 13 minutes
- (d) 13 minutes 20 second

Q49. What is the least number which when doubled will be exactly divisible by 12, 14, 18 and 22?

- (a) 1216
- (b) 1286
- (c) 1386
- (d) 1436

Q50. The volumes of two spheres are in the ratio of 64 : 27. Find the ratio of their surface areas.

- (a) 1 : 3
- (b) 1 : 5
- (c) 4 : 3
- (d) 16 : 9

Q51. The sum of two numbers is 70 and the difference of their squares is 1400. Find the difference between the numbers.

- (a) 20
- (b) 35
- (c) 49
- (d) 65

Q52. A man lent Rs. 60,000, partly at 5% and the rest at 4% simple interest. If the total annual interest is Rs. 2560, the money lent at 4% was

- (a) Rs. 30000
- (b) Rs. 40000
- (c) Rs. 44000
- (d) Rs. 45000

Q53. B got 20% marks less than A. What per cent marks did A get more than B?

- (a) 12
- (b) 20
- (c) 25
- (d) 80

Q54. A, B and C can finish a job working alone in 20, 30 and 60 days respectively. They all work together for 1 day, then A and B quit. How many days C working alone will take to finish the remaining part of the job?

- (a) 60
- (b) 54
- (c) 6
- (d) 27

Q55. In a basket, 4 times the number of apples is 30 less than twice the square of the number of apples. How many apples are there in the basket?

- (a) 10
- (d) 5
- (c) 7
- (d) 8

Q56. The average temperature of the first three days of a week is 26.5°C and that of the next three days is 29°C. If the weekly average is 27.4°C, what is the temperature of the last day?

- (a) 26.8°C
- (d) 24.8°C
- (c) 25.3°C
- (d) 26.4°C

Q57. A person buys a watch worth Rs.750 a mobile worth Rs. 3600 and a television worth Rs.10500 and pays duty of 4%, 7% and 9% respectively. Find out the total duty paid by him.

- (a) Rs.1300
- (d) Rs1197
- (c) Rs1227
- (d) Rs.1327

Q58. In a bus, 48%, 20% and 24% of passengers were from Mumbai, Delhi and Hyderabad respectively and remaining 20 were from Bihar. Then how many were from Mumbai?

- (a) 150 b) 120
- (c) 125
- (d) 130

Q59. The average of first five readings out of total 9 readings is 12. The average of last 5 readings is 15. The average of 9 readings is 10. Find out the 5th readings.

- (a) 35
- (d) 45
- (c) 63
- (d) 55

Q60. Raj sells a bicycle to Pawan at a profit of 25% and Pawan sells it to Dinkar at a profit of 20%. If Dinkar pays Rs 156, how much does Raj pay for it?

- (a) Rs 134
- (d) Rs 124
- (c) Rs 114
- (d) Rs 104

Q61. A man gains 10% by selling an article for a certain price. If he sells it at half of the price, the percentage loss will be:

- (a) 5%
- (b) 45%
- (c) 100%
- (d) 55%

Q62. If the angle of elevation of the sun is 60° , then the ratio of the height of a wall and its shadow is

- (a) $1 : \sqrt{3}$
- (b) $\sqrt{3} : 1$
- (c) $\sqrt{2} : 3$
- (d) $\sqrt{3} : \sqrt{2}$

Q63. The ratio of the age of Sweta and Santoshi is 9 : 4. If after 10 years, Santoshi's age would be the same as the present age of Sweta, find the present age of Sweta (in years).

- (a) 9
- (b) 36
- (c) 27
- (d) 18

Q64. A, B and C started a business with their investments in the ratio of 1 : 2 : 3. After 6 months, A invested the same amount as before and B and C withdrew half of their investments. The ratio of their profits at the end of the year is:

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

Q65. A person rows his boat 750 meters upstream in 675 seconds and returns in $7\frac{1}{2}$ minutes. What will be his speed in still water?

- (a) 3 km/h
- (b) 4 km/h
- (c) 5 km/h
- (d) 6 km/h

Q66. The average of 40 observations was 28. It was later found that in two observations, 42 was taken instead of 24 and 12 instead of 62. What is the correct average?

- (a) 26.8
- (b) 23.8
- (c) 28.8
- (d) 25.8

Q67. The respective ratio of boys and girls in a college is 31 : 23. After the admission of 75 more girls in the college, this ratio becomes 124 : 107. How many girls will have to admit in the class to make the number of boys and girls equal in the college ?

- (a) 75
- (b) 90
- (c) 60
- (d) 85

Q68. $(\sqrt{72} - \sqrt{18}) \div \sqrt{12}$ will be equal to

- (a) $\sqrt{6}$
- (b) $\sqrt{\frac{3}{2}}$
- (c) $\sqrt{\frac{2}{3}}$
- (d) $\sqrt{\frac{6}{2}}$



Q69. The sum of present ages of A and B is 7 times the difference of their ages. 5 years hence, their total ages will be 9 times the difference of their ages. What is the present age of elder one (in years)?

- (a) 25
- (b) 20
- (c) 15
- (d) 18

Q70. The ratio of the income of Ram and Shyam is 7 : 17 and the ratio of the income of Shyam and Sohan is 7 : 17. If the income of Ram is Rs. 490 then what is the income of Sohan ?

- (a) Rs. 1690
- (b) Rs. 2890
- (c) Rs. 1790
- (d) Rs. 1190

Q71. If $A : B = \frac{1}{2} : \frac{3}{8}$, $B : C = \frac{1}{3} : \frac{5}{9}$ and $C : D = \frac{5}{6} : \frac{3}{4}$ then

$A : B : C : D$ is

- (a) 6 : 4 : 8 : 10
- (b) 6 : 8 : 9 : 10
- (c) 8 : 6 : 10 : 9
- (d) 4 : 6 : 8 : 10

Q72. A trader sold an item at a loss of 20%. Had he sold it for Rs. 100 more, he would have gained a profit of 5%. What is the cost price of the item ?

- (a) Rs. 200
- (b) Rs. 25
- (c) Rs. 400
- (d) Rs. 250

Q73. A car left 3 minutes early than the scheduled time and in order to reach the destination 126 km away in time, it has to slow its speed by 6 km/hr from the usual. What is the usual speed (in km/hr) of the car?

- (a) 56
- (b) 63
- (c) 94.5
- (d) 126

Q74. The price of motor cycle depreciates every year by 10%. If the value of the motor cycle after 3 years will be Rs 36450, Then what is the present value (in Rs) of the motor cycle?

- (a) 45000
- (b) 50000
- (c) 48000
- (d) 51000

Q75. The average age of 6 members of a family is 25 years. If the youngest member of the family is 15 years old, then what was the average age (in years) of the family at the time of the birth of the youngest member?

- (a) 9
- (b) 12
- (c) 18
- (d) 24

Q76. A and B together can complete a work in 30 day. They started together but after 6 days A left the work and the work is completed by B after 36 more days. A alone can complete the entire work in how many days?

- (a) 45
- (b) 90
- (c) 60
- (d) 120

Q77. On an article the profit is 210% of the cost price. If the cost price increases by 40% but the selling price remains constant, then approximately what percentage of selling price will be the profit?

- (a) 55
- (b) 62
- (c) 74
- (d) 85

Q78. A boat travels 60 kilometers downstream and 20 kilometers upstream in 4 hours. The same boat travels 40 kilometers downstream and 40 kilometers upstream in 6 hours. What is the speed (in km/hr) of the stream?

- (a) 24
- (b) 16
- (c) 18
- (d) 20

Q79. The average of 5 consecutive odd numbers is 27. What is the product of the first and the last number?

- (a) 621
- (b) 667
- (c) 713
- (d) 725

Q80. 50 trees are standing in a line such that distance between any two consecutive trees is same. A car takes 18 seconds to travel from 13th tree to 34th tree. How much time (in seconds) will it take to reach from 1st tree to 50th tree?

- (a) 42
- (b) 42.85
- (c) 45
- (d) 49

Q81. Three bottles of equal capacity contain mixture of milk and water in ratio 2 : 3, 3 : 5 and 4 : 5 respectively. These three bottles are emptied into a large bottle. What is the ratio of milk and water respectively in the large bottle?

- (a) 439 : 1080
- (b) 439 : 641
- (c) 439 : 360
- (d) 439 : 79

Q82. Ram is five times as efficient as Rohit. Ram can complete a work in 60 days less than Rohit. If both of them work together then in how many days the work would be completed ?

- (a) $33\frac{1}{3}$
- (b) $12\frac{1}{2}$
- (c) 15
- (d) 25

Q83. A boat travels 24 km upstream in 6 hours and 20 km down-stream in 4 hours. Then the speed of boat in still water and the speed of water current are respectively.

- (a) 4 kmph and 3 kmph
- (b) 4.5 kmph and 0.5 kmph
- (c) 4 kmph and 2 kmph
- (d) 5 kmph and 2 kmph

Q84. In a college, 40% of the students were allotted group A, 75% of the remaining were given group B and the remaining 12 students were given group C. Then the number of students who applied for the groups is

- (a) 100
- (b) 60
- (c) 80
- (d) 92

Q85. A person borrowed a loan of Rs. 5600 for three years on simple interest. At the end of three years he returned Rs. 7000 to clear the principal and interest. What is the rate of interest per annum?

- (a) 8.33%
- (b) 13%
- (c) 37.5%
- (d) 11%

Q86. Charu borrowed a loan of Rs. 1,00,000 from a bank at 8% per annum simple interest to buy a shop. He rented the shop for Rs. 1875 per month. If he used 80% of the rent amount to discharge the loan, then how much time would he clear the loan including interest?

- (a) 10 years
- (b) 8 years
- (c) 10 years 4 months
- (d) 8 years 4 months

Q87. In what ratio must a grocer mix teas at Rs. 60 a kg, and Rs. 65 a kg, so that by selling the mixture at Rs. 68.20 a kg, he may gain 10%?

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

Q88. The sum of present ages of A and B is 7 times the difference of their ages. 5 years hence, their total ages will be 9 times the difference of their ages. What is the present age of elder one (in years)?

- (a) 25
- (b) 20
- (c) 15
- (d) 18

Q89. A ball bounces from a hard floor after falling from 10 meter of height. During collision its energy reduces by 20%. Up to what height it will bounce now ?

- (a) 2 m.
- (b) 8 m.
- (c) 4 m.
- (d) 6 m.

Q90. Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is:

- (a) 173 m
- (b) 200 m
- (c) 273 m
- (d) 300 m

Q91. The average weight of 9 items is 15kg. If one more item is added in the series the average becomes 16kg. What is the weight (in kg.) of the 10th item?

- (a) 24
- (b) 25
- (c) 26
- (d) 23

Q92. The ratio of the present ages of the son, mother, father and grandfather is 2:7:8:12 respectively. The average age of the son and mother is 27 years. What will be the age of the mother 7 years later?

- (a) 40 years
- (b) 41 years
- (c) 36 years
- (d) none of these

Q93. Ruchita got 43 in Hindi, 45 in Science, 67 in Math, 89 in social science and 65 marks in English. The maximum marks in each subject are 120. How much is her total percentage marks?

- (a) 55.1%
- (b) 51.5%
- (c) 65%
- (d) 62%

Q94. Ram donated 4% of his income to charity and deposited 10% of the rest in a bank. If now he has Rs. 8640 left with him, then his income is

- (a) Rs.12500
- (b) Rs.7500
- (c) Rs.8000
- (d) Rs. 10000

Q95. The ratio of my income in two consecutive years is 2:3 and that of expenditure is 5:9. If my income in second year is Rs. 45000 and my expenditure in first year is Rs. 25000 then total saving in two years together is

- (a) 0
- (b) Rs. 15000
- (c) Rs. 10000
- (d) Rs. 5000

Q96. After giving two successive discounts of 20% and 25% a cycle is sold for Rs 4200. What is the marked price (in Rs) of the cycle?

- (a) 7200
- (b) 7000
- (c) 6500
- (d) 6200

Q97. In a bag, three types of, Rs.1, 50 paise and 25 paise coins are there whose total number is 175. If the total value of each type of coins is same, then what is the total value of coins in the bag ?

- (a) Rs.75
- (b) Rs. 175
- (c) Rs. 300
- (d) Rs. 126

Q98. The difference between the simple interest received from two different sources on Rs. 1500 for 3 years is Rs. 13.50. The difference between their rates of interest is

- (a) 0.1%
- (b) 0.2%
- (c) 0.3%
- (d) 0.4%

Q99. A pole is broken by the storm of wind and its top struck the ground at an angle of 45° and at a distance of 25 m from the foot of the pole. The height of the pole before it was broken was ?

- (a) $25\sqrt{2}$ m
 (b) $25(1 + \sqrt{2})$ m
 (c) $20\sqrt{3}$ m
 (d) $\frac{25\sqrt{3}}{3}$ m

Q100. A sum of money at compound interest becomes Rs. 650 at the end of one year and Rs. 676 at the end of second year. The sum of money is

- (a) Rs 600
 (b) Rs 540
 (c) Rs 625
 (d) Rs 560



Solutions

S1. Ans.(a)

Sol. Price of 1 text book = $\frac{20000}{500} = \text{Rs. } 40$

Price of free 50 text books = $50 \times 40 = \text{Rs. } 2000$

So, profit = $\frac{2000}{20000} \times 100 = 10\%$

S2. Ans.(a)

Sol. Total expenditure = $20 + 60 + 10 = 90\%$

so, remaining salary = $[100 - 90]\% = 10\%$

$\Rightarrow 10\% = 30$

$\therefore 100\% = 300$

S3. Ans.(d)

Sol. ratio of surface area = $\frac{\text{sphere}}{\text{hemisphere}}$

$$= \frac{4\pi r^2}{3\pi r^2} = \frac{4}{3}$$

S4. Ans.(a)

Sol. Total students = 1400

Number of students who wear specs = 350

\Rightarrow Girls wear specs = $350 - 350 \times \frac{2}{7} = 250$

S5. Ans.(c)

Sol. Since A can complete $\frac{1}{3}$ rd work in 5 days

\therefore A can complete whole work in $5 \times 3 = 15$ days

Similarly, B can complete the whole work in $10 \times \frac{5}{2} = 25$ days

\therefore Total number of days taken by them working together = $\frac{1}{\frac{1}{15} + \frac{1}{25}} = \frac{25 \times 15}{(25+15)} = 9\frac{3}{8}$ days.

S6. Ans.(c)

Sol. Marked Price = 1200

Discount = 5% of 1200 = 60

So, selling price = $1200 - 60 = \text{Rs. } 1140$

S7. Ans.(c)

Sol. Required speed = $\frac{48 \times \frac{50}{60}}{\frac{40}{60}} = 60$ km/hr

S8. Ans.(d)

Sol. Machine's value after 3 years = $32000 \times$

$$\left(1 - \frac{5}{100}\right)^3 = \text{Rs } 27,436$$

S9. Ans.(b)

Sol. Area of base = $\pi r^2 = 1.54$

$\Rightarrow r^2 = 0.49$

$\Rightarrow r = 0.7$ km

Height of mountain = $\sqrt{(2.5)^2 - (0.7)^2} = 2.4$ km

S10. Ans.(d)**Sol.**

$$\begin{array}{ccc} N_1 & N_2 & N_3 \\ 1 & : & 2 & : \\ & : & 3 & : & 1 \\ \hline 3 & : & 6 & : & 2 \end{array}$$

$$\therefore \text{larger number} = \frac{55 \times 3}{(3+6+2)} \times 6 = 90$$

S11. Ans.(b)

Sol. Let the share of a man, a woman and a boy be $5x$, $4x$ and $3x$ respectively.

ATQ,

$$4 \times 5x + 5 \times 4x + 8 \times 3x = 960$$

$$20x + 20x + 24x = 960$$

$$x = 15$$

$$\therefore \text{share of a woman} = 4x = \text{Rs } 60$$

S12. Ans.(c)

Sol. Let the number of students be x . Then, Number of students above 8 years of age or of 8 years age

$$= (100 - 20)\% \text{ of } x = 80\% \text{ of } x.$$

$$\therefore 80\% \text{ of } x = 48$$

$$\Rightarrow x = 60$$

S13. Ans.(c)

$$\text{Sol. Principal} = \text{Rs. } \left(\frac{100 \times 5400}{12 \times 3} \right) = \text{Rs. } 15000.$$

S14. Ans.(b)

$$\text{Sol. CP of chair} = \frac{100}{75} \times 720 = \text{Rs. } 960$$

$$\text{To gain } 25\%, \text{ SP} = \frac{125}{100} \times 960 = \text{Rs. } 1200$$

S15. Ans.(c)

$$\text{Sol. Total time taken} = \left(\frac{160}{64} + \frac{160}{80} \right) \text{ hrs.} = \frac{9}{2} \text{ hrs.}$$

$$\therefore \text{Required average speed} = \frac{320}{\frac{9}{2}} = 71.11 \text{ kmph}$$

S16. Ans.(c)

Sol. Let the boys and girls be $3x$ and $2x$ respectively.

Then,

$$\frac{3x+6}{2x} = \frac{7}{4} \Rightarrow 12x + 24 = 14x$$

$$\Rightarrow 2x = 24 \Rightarrow x = 12$$

$$\therefore \text{Number of boys} = 3x + 6 = 3 \times 12 + 6 = 42.$$

S17. Ans.(c)

Sol. If two articles are sold at the same S.P. and there is a gain of $x\%$ on one table and a loss of $x\%$ on the other, then there is always a loss in this transaction and

$$\text{loss}\% = \frac{x^2}{100} = \frac{20 \times 20}{100} = 4\%.$$

S18. Ans.(c)

Sol. Let the numbers be $2x$ and $3x$.

Then, their L.C.M. = $6x$.

$$\text{So, } 6x = 48 \text{ or } x = 8.$$

$$\therefore \text{The numbers are } 16 \text{ and } 24.$$

$$\text{Hence, required sum} = (16 + 24) = 40.$$

S19. Ans.(c)

$$\text{Sol. Relative Speed} = (194.4 \times (5/18) + 6) = 60 \text{ m/s}$$

$$\text{Time} = 15 \text{ sec}$$

$$\therefore \text{length} = 60 \times 15 = 900 \text{ metre.}$$

S20. Ans.(b)

Sol. Since all the three distances are same, hence the average speed

$$= \frac{3 \times 10 \times 20 \times 60}{(200+1200+600)} \quad \left(\frac{3uvw}{uv+vw+wu} \right)$$

$$= \frac{36000}{2000} = 18 \text{ km/hr}$$

S21. Ans.(d)

Sol. Let the quantities of acid and water were x litre and $3x$ liters respectively

$$(x + 5) : 3x = 1 : 2$$

$$3x * 1 = (x + 5) * 2 = 2x + 10 \Rightarrow x = 10$$

$$\text{The quantity of new mixture} = x + 3x + 5$$

$$= 4x + 5 = 40 + 5 = 45 \text{ litres}$$

S22. Ans.(a)

Sol. The required number will be $234k+26$. Now when this number is divided by 13, the remainder will be same as remainder when 26 is divided by 13, i.e zero.

S23. Ans.(a)

Sol. Efficiency of P : Q = 3 : 1

Required number of days of P : Q = 1 : 3

i.e. If P requires x days then Q requires $3x$ days.

$$\text{but } 3x - x = 60$$

$$\rightarrow x = 30$$

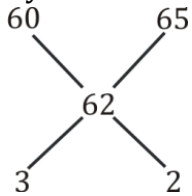
Thus so,

Q can finish the work in 90 days.

S24. Ans.(a)**Sol.** Given that 110% gain \Rightarrow 68.20

$$\text{So } 100\% = \frac{68.20}{110} \times 100 = 62 \text{ Rs}$$

By the mixture & Allegation rule.



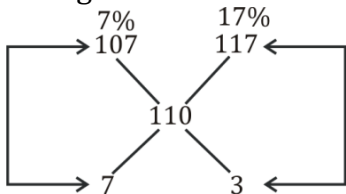
So, ratio is = 3 : 2

S25. Ans.(d)**Sol.** By mixture & Allegation -

Suppose whole sugar sell out on 7% = 107

Suppose whole sugar sell out on 17% = 117

total gain = 10% = 110



so, 7% sell out the amount 7 : 3 = 10

10 ratio = 100 kg,

1 ratio = 10 kg.

so, 7% \rightarrow 7 \times 10 = 70 kg**S26. Ans.(c)****Sol.** Let the original price per kg. be \rightarrow 100 Rs

Reduced price = 90 Rs

$$\therefore \text{Amount to be bought} = \frac{4900}{98} = 50 \text{ kg}$$

S27. Ans.(b)**Sol.** Batsman scored by running

$$= 110 - [3 \times 4 + 8 \times 6] = 50$$

$$\therefore \text{Req. Percentage} = \frac{50}{110} \times 100 = 45 \frac{5}{11} \%$$

S28. Ans.(d)**Sol.** successive percentage of 20%

$$= \left[20 + 20 + \frac{20 \times 20}{100} \right] = 44\%$$

successive of 20% & 44%

$$= \left[44 + 20 + \frac{44 \times 20}{100} \right] = 72.8\%$$

because volume proportional to radius³**S29. Ans.(d)****Sol.** It is clear that b will be zero. The last three digit 4ao will be divisible by 8. If $a + b = 0$ or 8, so, $a + b = 0$ or 8**S30. Ans.(a)****Sol.** We known that,Dividend = Divisor \times quotient + remainder.

(i) $\rightarrow 75 \times 3 = 225$

(ii) $\rightarrow 225 \times 1 + 75 = 300$

(iii) $\rightarrow 300 \times 1 + 225 = 525$

(iv) $\rightarrow 525 \times 3 + 300 = 1875$, the req. no. will be the dividend of first and second step.
 $\rightarrow 525 + 1875 = 2400$ **S31. Ans.(a)****Sol.** 10 M \times 12 = 10 W \times 6

2M = 1W

So, (10M + 10W) days = 10 W \times 6

15W \times days = 10 W \times 6

Days = 4

S32. Ans.(b)**Sol.** $\frac{A}{B} = \frac{3}{1}$ difference \rightarrow 2 ratio = 60 days

1 Ratio = 30 days

So, time = $\frac{3x \cdot x}{3x + x} = \frac{30 \times 90}{120} = 22 \frac{1}{2}$ day

S33. Ans.(b)**Sol.** Out of total profit Mohan got Rs. 6000 and Sohan got Rs. 3000

$$\therefore \frac{20000 \times 6}{x \times 12} = \frac{6000}{3000}$$

$$\Rightarrow x = \text{Rs. } 5000$$

S34. Ans.(b)**Sol.** 12 O'clock watch needs 11 times interval takes 22 sec.

The watch is taking 2 sec in each interval.

6 o'clock watch needs 5 equal intervals = 5 \times 2 = 10 sec**S35. Ans.(c)**

Sol. $(u+v) \times 3 \frac{3}{4} = 15$ and $(u-v) \times \frac{5}{2} = 5$

U = 3 km/h

V = 1 km/h

S36. Ans.(c)

Sol. $8 \times 15 + x \times 6 = (8 + x) \times 10.8$
 $120 + 6x = 10.8x + 86.4$
 $4.8x = 33.6 \Rightarrow x = 7$

S37. Ans.(d)

Sol. According to question,

$$\frac{MP}{SP} \left(\frac{10}{9} \right) \downarrow 10\% \text{ discount}$$

$$\frac{CP}{SP} \left(\frac{5}{6} \right) \downarrow 20\% \text{ profit}$$

To make SP same

$$\begin{array}{ccc} CP & SP & MP \\ 45 & 54 & 60 \end{array}$$

$$\begin{array}{ccc} \downarrow \times 10 & & \downarrow \times 10 \\ 450 & & 600 \end{array}$$

450 (Actual CP) 600 (Marked Price)

$\therefore MP = \text{Rs. } 600$

S38. Ans.(c)

Sol. ATQ,

If kamal is 100% efficient, then Bimal 150% efficient (50% more),

$$\left[\frac{B}{K} = \frac{150}{100} = \frac{3}{2} \right]$$

Kamal: Bimal \rightarrow efficiency $\rightarrow 2 \frac{\text{units}}{\text{day}} : 3 \frac{\text{units}}{\text{day}}$

Total Work = $15 \times 2 = 30$

Bimal can do it in = $\frac{30}{3} = 10$ days

S39. Ans.(c)

Sol. According to the question,

PT = 5 cm.

PA = 4 cm.

PB = (4+x) cm.

As we know that,

$$PT^2 = PA \times PB$$

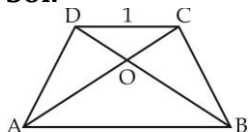
$$25 = 4(4 + x)$$

$$25 = 16 + 4x$$

$$x = \frac{9}{4} \text{ cm.}$$

S40. Ans.(a)

Sol.



$$\frac{\text{area of } \Delta COD}{\text{area of } \Delta AOB} = \frac{CD^2}{AB^2}$$

$$\frac{\text{area of } \Delta COD}{84} = \left(\frac{1}{2} \right)^2 \Rightarrow \frac{1}{4}$$

Area of $\Delta COD = 21 \text{ cm}^2$

S41. Ans.(b)

Sol. Average run of 10 innings = 50 runs

Increased run in 11 inning = $11 \times 2 = 22$ runs

Total runs = $50 + 22 = 72$ runs

S42. Ans.(c)

Sol. According to question,

$$CP = 30 \times 9.50 + 30 \times 8.5$$

$$= 30 [9.5 + 8.5]$$

$$= 30 \times 18 = \text{Rs. } 540$$

$$SP = 60 \times 8.90$$

$$= \text{Rs. } 534$$

$$\text{Loss} = CP - SP$$

$$= 540 - 534 = \text{Rs. } 6$$

S43. Ans.(b)

Sol. Let no. of persons be 'N'

$$\frac{N \times 55}{1} = \frac{(N + 6) \times 44}{1}$$

$$5N = 4N + 24$$

$$N = 24$$

S44. Ans.(b)

Sol. Let the speed of the cars be S_1 and S_2

$$= S_1 - S_2 = \frac{70}{7} = 10 \dots (i)$$

$$\text{And } S_1 + S_2 = \frac{70}{1} = 70 \dots (ii)$$

From equation (i) and (ii)

$$S_1 = 40 \text{ km/hr}$$

$$S_2 = 30 \text{ km/hr}$$

= Required speeds are 40 km/hr and 30 km/hr



S45. Ans.(d)**Sol.** According to question,

	Old	New
Price	5	6
	↓ 20% increase	→
Consumption	6	5
	↓ Decrease	→
Expenditure	30	30
% decrease	$= \frac{1}{6} \times 100 = 16\frac{2}{3}\%$	

S46. Ans.(d)**Sol.** Fail in Mathematics = 19%

Fail in English = 10%

$$\Rightarrow \text{Total Fail Students \%} = (19 + 10) - 7 = 22$$

∴ Students passed in Both the Subjects

$$= 100 - 22 = 78\%$$

S47. Ans.(c)**Sol.** Required selling price

$$= 600 \times \frac{110}{100} \times \frac{105}{100} = \text{Rs } 693$$

S48. Ans.(d)**Sol.** Speed to cover 10 km in 12 min

$$= \frac{10}{12} \times 60 = 50 \text{ km/hr}$$

$$\text{Required time} = \frac{10}{50-5} \text{ hr}$$

$$= \frac{10}{45} \times 60 \text{ min} = \frac{40}{3} \text{ min}$$

$$= 13 \text{ min } 20 \text{ sec}$$

S49. Ans.(c)**Sol.** Required number = $\frac{1}{2} \times \text{LCM of } (12, 14, 18, 22)$

$$= \frac{1}{2} \times 2772 = 1386$$

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

$$\frac{\frac{4}{3}\pi R_1^3}{\frac{4}{3}\pi R_2^3} = \frac{64}{27} \Rightarrow \frac{R_1}{R_2} = \frac{4}{3}$$

$$\text{Ratio of their surface area} = \frac{4\pi R_1^2}{4\pi (R_2)^2} = 16 : 9$$

S51. Ans.(a)**Sol.** Let the two numbers be x and y

$$\therefore x + y = 70$$

$$\text{And } (x^2 - y^2) = 1400$$

$$(x + y)(x - y) = 1400$$

$$x - y = 20$$

S52. Ans.(c)**Sol.** Let the amount lent at 4% be Rs. x.

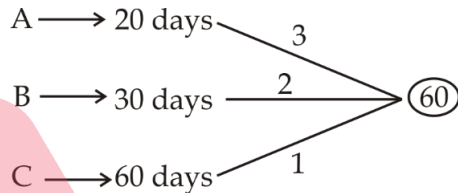
∴ Amount lent at 5% = Rs. (60000 - x)

According to the question.

$$\frac{(60000-x) \times 5 \times 1}{100} + \frac{x \times 4 \times 1}{100} = 2560$$

$$\Rightarrow 300000 - 5x + 4x = 256000$$

$$\Rightarrow x = 300000 - 256000 = \text{Rs. } 44000.$$

S53. Ans.(c)**Sol.** Required per cent = $\frac{20}{100-20} \times 100 = 25\%$.**S54. Ans.(b)****Sol.**

Work done by (A + B + C) in 1 day = (3 + 2 + 1) = 6 units

C, alone finish the remaining work in = $\frac{54}{1} = 54$ days**S55. Ans.(b)****Sol.** Let the number of apples be x

$$\therefore 4x = 2x^2 - 30 \Rightarrow (x - 5)(2x + 6) = 0 \Rightarrow x = 5, -3$$

$$\therefore x = 5$$

S56. Ans.(c)**Sol.** Temperature of last day

$$7 \times (27.4 - (3 \times 26.5 + 3 \times 29)) = 25.3^\circ\text{C}$$

S57. Ans.(c)**Sol.** Total duty paid = $750 \times 4\% + 3600 \times 7\% +$

$$10500 \times 9\%$$

$$= 30 + 252 + 945 = \text{`}1227$$

S58. Ans.(b)**Sol.** The number of passengers from Mumbai

$$= \frac{20 \times 100 \times 48}{(100 - (48 + 20 + 24)) \times 100}$$

$$= (48 \times 20) / 8$$

$$= 120$$

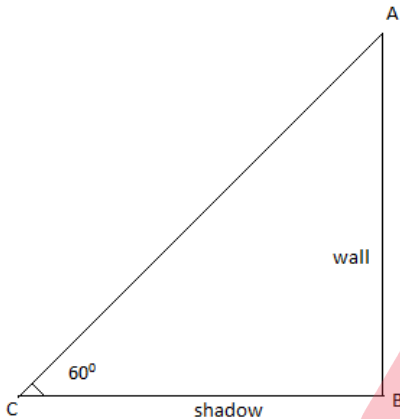
S59. Ans.(b)**Sol.** 5th reading = $(5 \times 12) + (5 \times 15) - (9 \times 10) = 45$

S60. Ans.(d)**Sol.** Let Raj paid Rs. x for the bicycle.

$$\begin{aligned} \text{Pawan paid} &= 1.25x, \text{ Dinkar paid} = 1.25x \times 1.2 = 156 \\ \Rightarrow 1.50x &= 156 \Rightarrow x = \text{Rs } 104 \end{aligned}$$

S61. Ans.(b)**Sol.** Let the CP = 100, SP = $100 \times 1.1 = 110$ half of SP = Rs 55, \Rightarrow Loss = $100 - 55 = \text{Rs.}45$

$$\% \text{ loss} = \frac{45 \times 100}{100} = 45\%$$

S62. Ans.(b)**Sol.** In the shown figure AB is a wall and BC is its shadow where angle of elevation of the sun, $\angle ACB = 60^\circ$ Shadow where angle of elevation of the sun, $\angle ACB = 60^\circ$

$$\tan 60 = \frac{AB}{BC} \Rightarrow \frac{\sqrt{3}}{1} = \frac{AB}{BC}$$

$$AB : BC = \sqrt{3} : 1$$

$$\text{Height : Shadow} = \sqrt{3} : 1$$

S63. Ans.(d)**Sol.** Let the ages of Swetha and Santoshi be $9x$ and $4x \Rightarrow 4x + 10 = 9x \Rightarrow x = 2$ \therefore Swetha's age = $9 \times 2 = 18$ years**S64. Ans.(a)****Sol.** Let the initial investments of A, B and C be $x, 2x, 3x$ respectively.A's investment for 6 months = $6x$ and remaining 6 months = $2x \times 6 = 12x$ B's investment for 6 months = $2x \times 6 = 12x$ and remaining 6 months = $x \times 6$ C's investment for 6 months = $3x \times 6 = 18x$ and remaining 6 months = $4.5x \times 6$

$$\begin{aligned} \text{Required ratio of profits} &= \text{ratio of investments} = \\ &= (6x + 12x) : (12x + 6x) : (18x + 9x) \\ &= 2 : 2 : 3 \end{aligned}$$

S65. Ans.(c)

$$\begin{aligned} \text{Sol. } (U-V) \times 675 &= 750, 9(U-V) = 10 \text{ _____ (i)} \\ &\& (U+V) \times \frac{15}{2} \times 60 = 750, 3(U+V) = 5 \text{ _____ (ii)} \end{aligned}$$

From (i) & (ii)

$$U = \frac{25}{18} \times \frac{18}{5} = 5 \text{ km/h.}$$

S66. Ans.(c)**Sol.** Sum of 40 observation = $40 \times 28 = 1120$

& Difference = 32

$$\text{So, } 1120 + 32 = 1152$$

$$\text{Correct Avg. } \frac{1152}{40} = 28.8$$

S67. Ans.(d)**Sol.**

B G

$$31 : 23$$

$$124 : 107$$

75 girl - add., but boys remain same.

$$\text{So, } 31 \times 4 = 124$$

$$124 : 92$$

$$15 \text{ Ratio} = 75$$

$$124 : 107$$

$$1 \text{ Ratio} = 5$$

$$\text{Diff.} = 17$$

$$\text{So, Req. No.} = 17 \times 5 = 85$$

S68. Ans.(b)

$$\text{Sol. } \frac{(6\sqrt{2} - 3\sqrt{2})}{2\sqrt{3}}$$

$$= \frac{3\sqrt{2}}{2\sqrt{3}} = \sqrt{\frac{3}{2}}$$

S69. Ans.(b)

$$\text{Sol. } x + y = 7 \text{ (x-y) or } 6x - 8y = 0 \text{ _____ (i)}$$

$$x + 5 + y + 5 = 9 \text{ (x - y)}$$

$$8x - 10y = 10 \text{ _____ (ii)}$$

After solving (i) & (ii)

$$x = 20 \text{ year}$$

$$y = 15 \text{ year}$$

S70. Ans.(b)

$$\text{Sol. Ram : Shyam : Sohan} = \frac{7}{17} \times \frac{7}{17} : \frac{7}{17} : 1$$

$$= 49 : 119 : 289$$

$$\text{Sohan is income} = \frac{289}{49} \times 490 = 2890$$

S71. Ans.(c)

Sol. $A : B = \frac{\frac{1}{2}}{\frac{3}{8}} = \frac{4}{3}$

$B : C = \frac{3}{5}$ and $C : D = \frac{\frac{5}{6}}{\frac{4}{9}} = \frac{10}{9}$

$A : B : C : D = 8 : 6 : 10 : 9$

S72. Ans.(c)

Sol. 25% of the cost Price = 100

Cost price = $\frac{100 \times 100}{25} = 400$

S73. Ans.(d)

Sol. Let the usual time be 't' hrs and usual speed be 'x' km/h

ATQ,

$126 = xt$ (i)

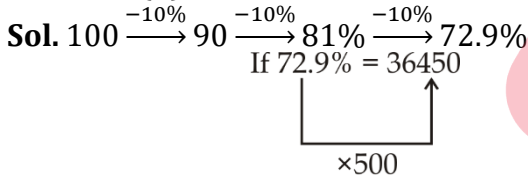
And $126 = (x-6) \times (t + \frac{3}{60})$

$126 = (x-6) \times (\frac{126}{x} + \frac{1}{20})$ (ii)

Solving eqn (i) and eqn (ii), we get

$x = 126$ km/h

S74. Ans.(b)



Then $100\% \Rightarrow 100 \times 500 = \text{Rs } 50000$

S75. Ans.(b)

Sol. Sum of the age of the family = $6 \times 25 = 150$ years

The sum of age of the family at the time of the birth of the youngest member = $150 - 90 = 60$

Average (age) = $\frac{60}{5} = 12$ years

S76. Ans.(b)

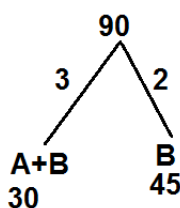
Sol. A + B _____ 30 days

$\frac{1}{5}$ work has been done by (A & B)

Now, $\frac{4}{5}$ work is done by B in 36 days

\therefore 1 work is done by B in $\frac{36 \times 5}{4} = 45$ days

So,

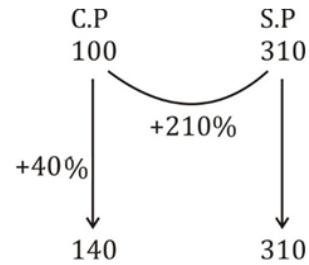


So, efficiency of A = 1

So, A alone can do work in = $\frac{90}{1} = 90$ days

S77. Ans.(a)

Sol.



\therefore Profit % on S.P = $\frac{310-140}{310} \times 100$

= $\frac{170}{310} \times 100 \approx 55\%$

S78. Ans.(b)

Sol. Let the speed of Boat = B km/hr

And the speed of stream = S km/hr

$\therefore \frac{60}{B+S} + \frac{20}{B-S} = 4$

$\frac{40}{B+S} + \frac{40}{B-S} = 6$

\therefore By solving. B = 24, S = 16

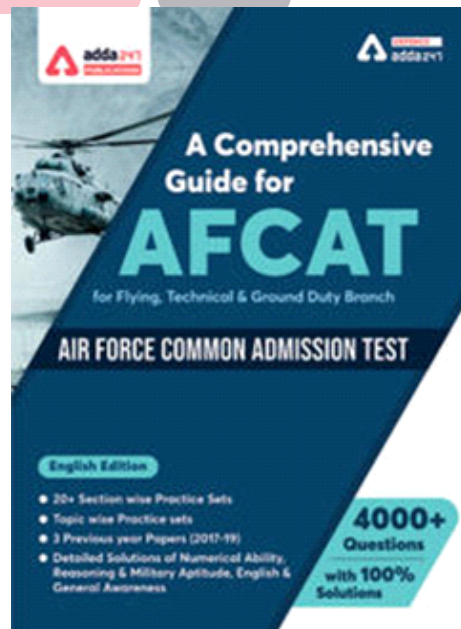
\therefore Speed of the stream = 16 km/hr.

S79. Ans.(c)

Sol. 5 consecutive odd numbers are- 23, 25, 27, 29, 31

\therefore Product of First and last number

= $23 \times 31 = 713$



Then, $AB = 100$ m, $\angle ACB = 30^\circ$ and $\angle ADB = 45^\circ$.

$$\frac{AB}{AC} = \tan 30^\circ = \frac{1}{\sqrt{3}} \Rightarrow AC = AB \times \sqrt{3} = 100\sqrt{3} \text{ m.}$$

$$\frac{AB}{AD} = \tan 45^\circ = 1 \Rightarrow AD = AB = 100 \text{ m}$$

$$CD = (AC + AD) = (100\sqrt{3} + 100) \text{ m} = 100(\sqrt{3} + 1) = (100 \times 2.73) \text{ m} = 273 \text{ m}$$

S91. Ans.(b)
Sol. Sum of weight of 9 items = $15 \times 9 = 135$ kg

Sum of weight of 10 items = $16 \times 10 = 160$ kg

10th item = $160 - 135 = 25$ kg

S92. Ans.(d)

Sol. Let the present age of son & Mother = $2x$ & $7x$

Sum of ages of son & mother = $2x + 7x = 27 \times 2$

$$\Rightarrow 9x = 54$$

$$x = 6$$

\therefore Present age of Mother = $7x = 42$

Age of mother 7 years later = $42 + 7 = 49$ yrs.

S93. Ans.(b)

Sol. Total marks obtained by Ruchita = $43 + 45 + 67$

+ $89 + 65$

= 309

Sum of maximum marks = $5 \times 120 = 600$

$$\therefore \text{required percentage} = \frac{309}{600} \times 100 = 51.5\%$$

S94. Ans.(d)

Sol. Let the income of Ram = 100%

After donating to charity, remaining = 96%

& after deposition, remaining = $96 - 9.6 = 86.4\%$

We have $86.4\% = 8640$

$$\therefore \text{Income of Ram} = \frac{8640}{86.4} \times 100 = \text{Rs. } 10000$$

S95. Ans.(d)

Sol.

	Income	:	Expenditure
I	2	:	5
II	3	:	9

2nd year income = 45000

\therefore 1st year income = $30,000$

1st year exp. = $25,000$

2nd year exp. = 45000

Total saving in two years together = $5000 + 0 = \text{Rs. } 5000$

S96. Ans.(b)

$$\text{Sol. Net discount} = 20 + 25 - \frac{20 \times 25}{100}$$

$$= 45 - 5$$

$$= 40\%$$

$$\therefore 0.6x = 4200$$

$$x = 7000$$

S97. Ans.(a)

Sol. Total value of 1 rupee coins = $\text{Rs } x$

\therefore Total no. of 1 rupee coins = x

Total value of 50 paise coins = $\text{Rs } x$

Total number of 50 paise coins = $2x$

Total value of 25 paise coins = $\text{Rs } x$

Total number of 25 paise coins = $4x$

ATQ $\rightarrow x + 2x + 4x = 175 \Rightarrow x = 25$

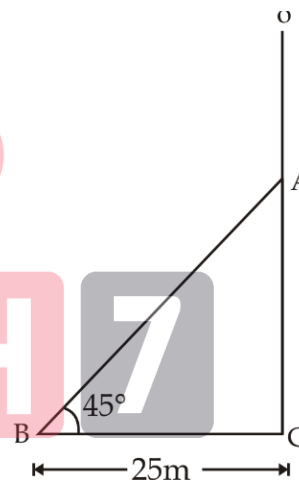
Total value of coins = $3x = 25 \times 3 = 75$

S98. Ans.(c)

$$\text{Sol. Required difference in rates} = \frac{13.50 \times 100}{1500 \times 3} = 0.3\%$$

S99. Ans.(b)

Sol.



In $\triangle ACB$,

$$\tan 45^\circ = \frac{AC}{BC}$$

$$\Rightarrow AC = 25 \text{ m}$$

Now,

$$(AB)^2 = (BC)^2 + (AC)^2$$

$$= (25)^2 + (25)^2$$

$$AB = 25\sqrt{2}$$

\therefore Height of the pole

$$= 25 + 25\sqrt{2} = 25(\sqrt{2} + 1) \text{ Meter}$$

S100. Ans.(c)

Sol. We have- $\frac{P(1+\frac{r}{100})^2}{P(1+\frac{r}{100})} = \frac{676}{650} = \frac{26}{25}$

$$\left(1 + \frac{r}{100}\right) = \frac{26}{25}$$

Now $P\left(1 + \frac{r}{100}\right) = 650$

$$P \times \frac{26}{25} = 650$$

$$P = \frac{650 \times 25}{26} = \text{Rs } 625$$

