IRDA Assistant Manager Memory Based Paper - Quantitative Aptitude

Directions (1 – 15): What approximate value should come in place of Question mark (?) in the following equation?

Q1. $\frac{25\%\ of\ 295.7\times32.02}{?}=\frac{36.99}{25\%\ of\frac{1}{4}}$
(a) 2
(b) 4
(c) 6
(d) 8
(e) 1

Q2. $\frac{\sqrt[3]{404.99\times315.01\times245.40}}{\sqrt{33\frac{1}{3}\%\ of\ 26.99}}=?$
(a) 100
(b) 105
(c) 110
(d) 115
(e) 95

Q3. $19.66\%\ of\ 144.87-\frac{266.47}{118.84}\times\frac{17}{18.84}=?^3$
(a)5
(b) 7
(c) 0
(d) 3
(e) 6

Q4. $\sqrt{82\div8.76\div9.25\times3.76}+\frac{181}{91.10}\times\frac{473.92}{237.40}+7.91=?^{\frac{1}{2}}$
(a) 100
(b) 400
(c) 256
(d) 169
(e) 196

Q5. $6739+161\times4.966-74.99\times11.888+20\%of121-10\%of109=?$
(a) 6657
(b) 7067
(c) 7167
(d) 6587
(e) 6757

Q6. $\sqrt{63.82\times36.01}+419.92\div5.84-540=?-799.98$
(a) 426
(b) 378
(c) 526
(d) 328
(e) 448

Q7. 15.812% of 1600.125 +? % of 1199.98 = 19.88 × 121.98
(a) 182
(b) 142
(c) 326
(d) 286
(e) 216

Q8. $(7.98)^3+(14.88)^2-(12.01)^2=?-1219.812-1749.98$
(a) 3643
(b) 3425
(c) 3416
(d) 3563
(e) 3521

Q9. $19.825\times\sqrt{?}=63.91\%$ of 399.98 + 11.95% of 1200.01
(a) 300
(b) 500
(c) 420
(d) 350
(e) 400

Q10. $(?)^2+14.01\%$ of 1599.98 = 59.01 × 12.025
(a) 18
(b) 28
(c) 22
(d) 36
(e) 32

Q11. $?\%\ of\ 7999.97+(41.07)^2-29.98\%\ of\ 4149.89=(25.91)^2$
(a) 5
(b) 3
(c) 2
(d) 4
(e) 1

Q12. $\frac{249.83+?}{49.97}+416.99+(19.87)^2=(24.87)^2+20.09\times9.98$
(a) 154
(b) 150
(c) 158
(d) 162
(e) 156

Q13. $(21.87)^2+12.493\times19.89-\sqrt{15624.98}-(?)^2\ of\ 3.96=(14.96)^2$
(a) 4
(b) 6
(c) 12
(d) 8
(e) 10

Q14. $\frac{9899}{10.98 \times \sqrt{9.03}} \times \sqrt{678 + 485} \times 0.01 + 97.88 = 80\%$ of ?
(a) 240
(b) 260
(c) 250
(d) 230
(e) 270

Q15. $\frac{5435.99}{302.12} + \sqrt{323.898} + 53.89 + 35.98\%$ of $1000 = \frac{108.11}{5.99} \times ? + 216.05$
(a) 10
(b) 12
(c) 15
(d) 13
(e) 18

Direction (16-25): What will come in place of question mark(?) in the following questions?

Q16. $55\%\ of\ 900\ +\ 70\%\ of\ 1050\ = ?\%\ of\ 3000$
(a) 41
(b) 42
(c) 43
(d) 44
(e) 45

Q17. $73823 - 34156 + 4756 + 6758 - 9849 = 41499 - 160 - ?$
(a) 5
(b) 7
(c) 4
(d) 8
(e) 6

Q18. $\frac{5599}{1331} \times \frac{3773}{2036} \times \frac{88}{49} = ? - 6^2$
(a) 44
(b) 46
(c) 48
(d) 50
(e) 52

Q19. $84 \times \frac{1}{4} \div 21^2 + ? = \frac{7}{147} \times 21 - \frac{20}{21}$
(a) 2
(b) 1
(c) 0
(d) 3
(e) 4

Q20. $\sqrt{5776} - \sqrt{1444} + \sqrt{729} = 43 + ?$
(a) 25
(b) 20
(c) 26
(d) 24
(e) 22

Q21. $1396 + 412 - 2704 = ? - (31)^2$
(a) 28
(b) 45
(c) 65
(d) 85
(e) 98

Q22. $78 \times 26 \div 6 + 1262 = 1311 + (?)^2$
(a) 17
(b) 22
(c) 15
(d) 13
(e) 19

Q23. $1484 \div 28 + 1462 \div 34 - 12 \times 7 = ?$
(a) 12
(b) 14
(c) 18
(d) 16
(e) 20

Q24. $42.5 \times 15 + 37.5 \times 25 = 1420 + ?$
(a) 145
(b) 165
(c) 155
(d) 170
(e) 185

Q25. $2450 + 3760 - 3830 = 6000 - ?$
(a) 3610
(b) 3620
(c) 3580
(d) 3600
(e) 3520

Directions (26-40): Find out the wrong number in the following number series.

Q26. 2030,2050,2000,2100,1900,2300,1500
(a) 1500
(b) 2030
(c) 2050
(d) 2100
(e) 1900

Q27. 10,6,6,9,18,45,135
(a) 9
(b) 18
(c) 135
(d) 10
(e) 45

Q28. 337,318,301,278, 249,218,181
(a) 318
(b) 278
(c) 301
(d) 249
(e) 218

Q29. 75,100,200,425,820,1450,2350
(a) 2350
(b) 425
(c) 200
(d) 820
(e) 1450

Q30. 81, 100,130,171,223,285,360
(a) 81
(b) 285
(c) 360
(d) 171
(e) 100

Q31.−18, 558, 958,1214,1358, 1422, 1436
(a) 1436
(b) −18
(c)558
(d) 958
(e) 1214

Q32. 15,75,129,191, 243,309,357
(a) 15
(b)75
(c) 309
(d) 243
(e) 357

Q33. 210,232,270,350, 510, 830,1470
(a) 210
(b) 1470
(c) 270
(d) 232
(e) 830

Q34.48, 144, 360,720,1040,1080,540
(a) 1040
(b) 144
(c) 48
(d) 720
(e) 540

Q35.19, 56, 166,494, 1474,4406,13184
(a) 19
(b) 13184
(c) 166
(d) 494
(e) 4406

Q36.−18, 558, 958,1214,1358, 1422, 1436
(a) 1436
(b) −18
(c)558
(d) 958
(e) 1214

Q37. 15,75,129,191, 243,309,357
(a) 15
(b)75
(c) 309
(d) 243
(e) 357

Q38. 210,232,270,350, 510, 830,1470
(a) 210
(b) 1470
(c) 270
(d) 232
(e) 830

Q39.48, 144, 360,720,1040,1080,540
(a) 1040
(b) 144
(c) 48
(d) 720
(e) 540

Q40.19, 56, 166,494, 1474,4406,13184
(a) 19
(b) 13184
(c) 166
(d) 494
(e) 4406

Direction (41 – 55) : What will come in the place of question mark (?) in the following number series :

Q41.7,19,33,51,71, ?
(a) 95
(b) 93
(c) 90
(d) 91
(e) 97

Q42.?, 226,394, 514,594,642
(a) 5
(b) 6
(c) 1
(d) 2
(e) 4

Q43.4, 20, 60,160, ?,1035
(a) 410
(b) 412
(c) 408
(d) 416
(e) 418

Q44.25, 40,115, 235,385, ?
(a) 560
(b) 520
(c) 530
(d) 548
(e) 550

Q45.12,8, 10, 22,?, 722
(a) 88
(b) 90
(c) 86
(d) 84
(e) 96

Q46. 36,49, 75,114, 166,?
(a) 225
(b) 218
(c) 231
(d) 244
(e) 235

Q47. 1,3,9,21, 41, ?
(a) 61
(b) 71
(c) 83
(d) 78
(e) 68

Q48. 114, 110, 101, ?,60, 24
(a) 91
(b) 84
(c) 87
(d) 85
(e) 83

Q49. 343,?,125, 16, 27, 4
(a) 216
(b) 36
(c) 49
(d) 64
(e) 81

Q50. ?,36,37,76,307,2460
(a) 35.5
(b) 48
(c) 35
(d) 64
(e) 72

Q51.220, 430, 766, 1270, ?,2980
(a) 1950
(b) 1990
(c) 2040
(d) 2090
(e) 2130

Q52. 330,450,594,762, 954, ?
(a) 1130
(b) 1080
(c) 1200
(d) 1170
(e) 1180

Q53. ?,80, 120, 300,1050, 4725
(a) 160
(b) 120
(c) 40
(d) 180
(e) 100

Q54. 10800,1800,9000, 2250, ?,3375
(a) 5750
(b) 6500
(c) 7750
(d) 8000
(e) 6750

Q55. 240,306,380,?,552,650
(a) 472
(b) 492
(c) 512
(d) 462
(e) 542

Q56. A shopkeeper sells a product after allowing two successive discounts of 10% and 20% on it. Find the profit percent if the profit is 30% of the price by which the product is marked up?
(a) 30%
(b) 17.5%
(c) 25%
(d) 15%
(e) 20%

Q57. 45% of first number is equal to 60% of second number. If average of both the numbers is 10 less than the first number, then find 80% of second number?
(a) 64
(b) 40
(c) 48
(d) 56
(e) 80

Q58. Arun invested Rs. 10,000 for three years at CI at the rate of 20% per annum. If in 1st and 3rd year interest is calculated annually and in 2nd year it was calculated half-yearly, then find the total interest received by Arun in three years?
(a) Rs 7554
(b) Rs 7424
(c) Rs 7868
(d) Rs 7262
(e) Rs 7343

Q59. Amit's present age is 75% of Binny's present age where as present age of Chintu is $\frac{5}{8}th$ of Binny's present age. If difference between difference of Chintu and Binny age and difference of Binny and Amit age is 6 years then find the average of their age two years later?
(a) 44 years
(b) 42 years
(c) 36 years
(d) 40 years
(e) 38 years

Q60. Speed of boat in still water is 37.5% less than the speed of the boat in downstream and boat covers 30 km in upstream in 5 hours, then find time taken by boat to cover 84 km in downstream?
(a) 3.5 hr
(b) 3 hr
(c) 4.5 hr
(d) 4 hr
(e) 5 hr

Q61. 25 lit of a mixture of acid 1 and acid 2 containing 55 % of acid 1 is mixed with 15 lit of another mixture containing 37 % of acid 2 to get a mixture D. Now mixture D is mixed with 30 lit of mixture C and percentage of acid 2 becomes 48%, then find percentage of acid 1 in mixture C. (all mixture containing acid 1 and acid 2 only)
(a) 56 %
(b) 44 %
(c) 48%
(d) 42%
(e) 50%

Q62. A, B and C invests Rs. 92000, Rs. 115000 and Rs. 138000 in a business. At the end of year profit of A and B is given to a trust and profit of C is distributed among them in such a way that C gets $16\frac{2}{3}$ % of his total profit and rest is distributed between B and A in ratio 2:3 respectively. In this process B gets Rs. 30000. Find their total actual profit (In Rupees).
(a) 150000
(b) 300000
(c) 225000
(d) 200000
(e) 175000

Q63. Manoj and Hemant purchased two bikes 18 years ago at different price. If price of their bike were decreasing at the rate of $5\frac{15}{17}$% per year and Manoj sold his bike 2 years before Hemant, then their selling price became same. If difference between their purchasing price was 1320, then find purchasing price of Manoj's Bike. (**Note –** Both sold their bikes at depreciated prices and Hemant sold his bike after 18 years).
(a) Rs 11560
(b) Rs. 11060
(c) Rs. 9000
(d) Rs. 9200
(e) Rs. 10240

Q64. Vikash and Mohit started from point A towards point Q. Distance between A and Q is 9 km. If Mohit starts after 4 min., then he will meet Vikash 1 km away from point Q at a time when Vikash is returning towards point A after reaching point Q and Vikash can cover 1 km in 6 min. find speed of Mohit in km/min.
(a) $\frac{1}{7}$
(b) $\frac{1}{8}$
(c) $\frac{1}{9}$
(d) $\frac{1}{6}$
(e) $\frac{1}{12}$

Q65. A Boat is moving in downstream and speed of Boat in still water is 5 times speed of current. After 16 km due to technical problem speed of boat (in still water) reduced by 20 % and it cover 40 km distance with this speed. If average speed of whole journey is $\frac{7}{20}$ km/min, then find speed of current.
(a) $4\frac{1}{8}$ km/hr
(b) $2\frac{7}{10}$ km/hr
(c) 4 km/hr
(d) 5 km/hr
(e) $4\frac{3}{8}$ km/hr

Q66. Two cards are drawn at random from a pack of 52 cards, then find the probability of getting one red face card and one black ace?
(a) $\frac{1}{221}$
(b) $\frac{2}{221}$
(c) $\frac{76}{221}$
(d) $\frac{91}{221}$
(e) $\frac{5}{221}$

Q67. If side of a square is equal to height of equilateral triangle, then find ratio of area of equilateral triangle to area of square?
(a) $\sqrt{2}$: 5
(b) 3 : 5
(c) $\sqrt{3}$: 2
(d) 1 : $\sqrt{3}$
(e) Data insufficient.

Q68. Deepak invested some amount on SI out of Rs.47000 and rest amount on C.I. for two years. If S.I. is offering 12% p.a. and C. I. is offering 15% p.a. compounding annually and C.I. is Rs.532.5 more than S.I., then find amount invested by Deepak on C.I?
(a) Rs.23000
(b) Rs.22000
(c) Rs.21000
(d) Rs.25000
(e) Rs.24000

Q69. B is twice as old as A. Average of present age of A and B is 24 years and average of present age of B and C is 38 years. Find present age of C is what percent less than present age of A and B together?
(a) $4\frac{2}{9}\%$
(b) $11\frac{6}{11}\%$
(c) $5\frac{1}{5}\%$
(d) $13\frac{2}{7}\%$
(e) $8\frac{1}{3}\%$

Q70. Vessel-A and Vessel-B contains mixture of milk and water in the ratio of 2 : 3 and 5 : 3 respectively. When 50% mixture from Vessel-A and 40% mixture from Vessel-B taken out and mixed together, then the resulting mixture contains 36 liters of water and 36 liters of milk. Find ratio of quantity of water in Vessel-A to quantity of water in Vessel-B?
(a) 8 : 5
(b) 1 : 1
(c) 2 : 3
(d) 5 : 7
(e) 9 : 5

Q71. A shopkeeper has two articles A & B. He sold A at Rs. 128 and cost price of article A is Rs. x and gains $(x - 20)\%$ in this transaction. If cost price of article B is 25% more than A, then find at what price shopkeeper should sold B to make of profit of 40%?
(a) 118
(b) 124
(c) 136
(d) 148
(e) 140

Q72. The ratio of daily wage of three workers P, Q & R in 'MANREGA' is 21 : 16 : 18 respectively. If any of workers work on Sunday, then gets Rs. 125 extra on that day. The ratio ofwage of P, Q&R for a weekday and Sunday is 26 : 21 : 23, then find the difference between wage of P&R on a weekday & Sunday (in Rs.) ?
(a) 64
(b) 75
(c) 90
(d) 125
(e) 100

Q73. Veer invested an amount on simple interest, and it becomes two times of itself in 10 years. If Veer invested Rs. X at the same rate of interest on CI and he gets Rs. 5324 as amount after three years, then find amount invested by Veer (in Rs.)?
(a) 4400
(b) 3600
(c) 4800
(d) 4000
(e) 3000

Q74. Seven people chosen for Kho -Kho team from a group of 8 boys and 6 girls. In how many ways 3 boys and 4 girls can be chosen for Kho -Kho team ?
(a) 92
(b) 696
(c) 768
(d) 840
(e) 864

Q75. Train-A crosses a pole in 9 seconds and Train-B which is 180m long and running at 150km/hr crosses Train-A in 57.6 *seconds*, when running in same direction. Then, find in how much time will Train-A cross Train-B when running in opposite direction?
(a) 9.6 seconds
(b) 8.2 seconds
(c) 6.4 seconds
(d) 5 seconds
(e) 11.2 seconds

Q76. A pipe can fill a tank in 36 minutes & another pipe can fill it in 48 minutes, but a third Pipe can empty it in 18 minutes. The first two pipes are kept open for 16 minutes in the beginning then the third Pipe is also opened. In what time is the cistern emptied?
(a) 120 min
(b) 80 min
(c) 96 min
(d) 112 min
(e) 144 min

Q77. A container contains two liquids A and B in the ratio 8 : 5 .When 13 liters of mixture is drawn off and is completely replaced with liquid B, then the ratio of A and B in the container becomes 1 : 1. How many liter of liquid A was in the container initially ?
(a) 128/3 liter
(b) 117 liter
(c) 134/3 liter
(d) 121/3 liter
(e) 130 liter

Q78. A cricketer had a certain average of runs in 80 innings. In his 81st inning, he is bowled out for no score, due to which his average falls by 1 run. Then, find his new average of runs?
(a) 50
(b) 60
(c) 70
(d) 80
(e) 90

Q79. A man can row at 14 km/hr. in still water and speed of stream is 2 km/hr. If it takes him 7 hr. to row to a place & to come back, then find how far is the place?
(a) 36 km
(b) 48 km
(c) 28 km
(d) 54 km
(e) 42 km

Q80. A shopkeeper earns profit of $16\frac{2}{3}\%$ after selling a book at 12.5% discount on the printed price. Then, find the ratio of the cost price & printed price of the book?
(a) 1 : 2
(b) 2 : 3
(c) 3 : 4
(d) 4 : 5
(e) 5 : 6

Q81. Hemant purchased some book and by selling 40% of total books he will get cost price of 80% books. If he sells 70% of remaining books at half of its initial profit percent and rest of the books remain unsold, find his overall profit %.
(a) 40%
(b) 45%
(c) 75%
(d)3%
(e) 63%

Q82. Shubham work for 5 days and remaining work was completed by Harvinder in 9 days. If Harvinder work for 12 days then remaining work was completed by Shubham in 3 days, then find how much time Harvinder will take to complete the work alone.
(a) 11 days
(b) $16\frac{1}{2}\ days$
(c) $16\frac{2}{3} days$
(d) $11\frac{1}{2} days$
(e) $6\frac{3}{5} days$

Q83. In a bag there are 6 blue, 4 red and 5 green balls. Three balls are chosen at random with replacement, find probability of getting utmost one color.
(a) $\frac{27}{125}$
(b) $\frac{64}{125}$
(c) $\frac{64}{3375}$
(d) $\frac{1}{27}$
(e) $\frac{3}{25}$

Q84. A large sphere of radius 'R' cm was converted into 64 small spheres of radius 'r' cm and then one small sphere is converted into 16 smaller cones of radius of 'a' cm. If height of cone is two times of its radius, then find R:a:r.
(a) 6:1:2
(b) 4:2:1
(c) 8:1:2
(d) 4:1:2
(e) 16:1:4

Q85. Pankaj purchased 3575 balls and 2002 bats and cost price of one bat is equal to cost price of one ball. He sold ball in such a way that he can buy 850 balls by selling 799 balls and can buy 777 bats by selling 987 bats. Find approximate overall loss/profit percent earned by Pankaj by selling all balls and bats.
(a) 4%
(b) 5%
(c) 7%
(d) 6%
(e) 9%

Q86. Efficiency of B is 40% more than efficiency of A and efficiency of C is 150% of efficiency of B. B alone can complete 40% of work in 6 days. Then, find in how many days 60% of the same work will be completed by A & C working together, if A is working with 5% more efficiency.
(a) 4 days
(b) 6 days
(c) 5 days
(d) 3 days
(e) 7 days

Q87. A circle is inscribed in an equilateral triangle whose height is $3\sqrt{3}$ cm. Then, find the ratio of area of equilateral triangle to area of circle inscribed in an equilateral triangle.
(a) $3\sqrt{3} : 4$
(b) $4 : 3\sqrt{3}$
(c) $5\sqrt{2} : 7\sqrt{3}$
(d) Cannot be determined.
(e) None of the above.

Q88. Ayush has 5 milky bar chocolates, 2 Silk Oreo chocolates & 8 Bournville chocolates. If he selected two chocolates randomly to eat, then find the probability of getting at most 1 Silk Oreo chocolate.
(a) $\frac{33}{35}$
(b) $\frac{104}{105}$
(c) $\frac{6}{7}$
(d) $\frac{19}{21}$
(e) $\frac{14}{15}$

Q89. There are two mixture comprising milk and water. Ratio of milk to water in both mixture is 4 : 1. 50% of mixture – B is mixed in mixture – A, then quantity of water in the resulting mixture becomes 20 liters. Then, find ratio of total quantity of mixture – A to total quantity of mixture – B if total quantity of both the mixture is 140 lit.
(a) 4 : 3
(b) 3 : 4
(c) 5 : 6
(d) 6 : 5
(e) None of the above.

Q90. Shivam invested Rs.15000 in two schemes offering R% p.a. S.I. for two years and difference of interest received from both schemes after 2 years is Rs.300. Had he invested Rs.4000 at R% p.a. S.I. for four years, then the interest received by him after four years is Rs.2400. Then, find difference of principal invested by Shivam in both the schemes.
(a) Rs.4000
(b) Rs.3000
(c) Rs.7000
(d) Rs.2000
(e) Rs. 1000

Q91. A shopkeeper sells a car for Rs.52510 and incurs a loss of 11%. He sells another car at 5% profit. If on selling both the cars he neither earns profit nor incurs loss, then find the cost price of second car.
(a) Rs.128300
(b) Rs.129800
(c) Rs.127400
(d) Rs.126800
(e) Rs.125200

Q92. Train – A can cross a 400m long platform in 36 seconds. Train – B crosses train – A in 66 seconds while running in same direction and train – B crosses a pole in $\frac{72}{7}$ seconds. If ratio of length of train – A to train – B is 5 : 6, then find time taken by train – A to cross a pole.
(a) 12 seconds
(b) 17 seconds
(c) 11 seconds
(d) 14 seconds
(e) 19 seconds

Q93. There are four pipes connected to a tank – A, B, C and D. A & D are inlet pipes and B & C are outlet pipes. When all four pipes are opened together, then the tank will be filled in 40 minutes. When B & D are opened together, then the tank will be filled in 60 minutes. If D is twice as efficient than C and A is 25% more efficient than C, then find in how much time the tank will be filled when A & C are opened together?
(a) 120 minutes
(b) 100 minutes
(c) 90 minutes
(d) 70 minutes
(e) None of the above.

Q94. When two dices are rolled simultaneously, then what will be the probability of getting sum more than 4 and less than 7?
(a) $\frac{1}{3}$
(b) $\frac{1}{6}$
(c) $\frac{1}{18}$
(d) $\frac{1}{4}$
(e) $\frac{2}{9}$

Q95. Present age of C is 9 less than the sum of present age of A & B and 6 years hence, age of B will be twice of age of A. If C is 15 years older than B, then find present age of D (present age of D is 4 less than the average of present age of A, B & C).
(a) 41 years
(b) 45 years
(c) 52 years
(d) 59 years
(e) 61 years

Q96. A ship is 108 km away from the shore when a leak appears on its bottom surface which admits 2.5 tons of water in 10 minutes. 40 tons of water is required to start sinking the ship but the pumps can throw out 2 tons of water in 12 minutes. Find the average rate of sailing at which ship must sail so that it may just reach the shore as it begins to sink.
(a) 13.5 kmph
(b) 16.5 kmph
(c) 10 kmph
(d) 15 kmph
(e) 12.5 kmph

Q97. A & B together can finish a certain piece of work in 6 days. If A reduces his efficiency by 20 % and B increases his efficiency by 30 %, then work will be finish in same time. If A work with his original efficiency and B work with 2 times of his efficiency, then in how many days working together work will be finished?
(a) 7 days
(b) $4\frac{4}{7}$ *days*
(c) $3\frac{2}{7}$ days
(d) None of these
(e) $4\frac{2}{7}$ *days*

Q98. There are two mixture each containing Tea, Sugar and Rice. First mixture contains $26\frac{2}{3}$ % rice and second mixture contain 35 % sugar. The percentage of tea in both mixtures are same. If 240 kg of first mixture is mixed with the 360 kg of second mixture, then the percentage of tea in resultant mixture is $33\frac{1}{3}$ %. Find the quantity of sugar in the resultant mixture?
(a) 250 kg
(b) 342 kg
(c) 222 kg
(d) 231 kg
(e) 312 kg

Q99. Kapil and Pooja started a business. Kapil invested Rs. 80,000 and after 8 month he invests Rs. 40,000 more. Pooja invested Rs. 1,00,000 and withdraws Rs. 20,000 after 4 months. Pooja is an active partner, so she receives Rs. 2700 per month as salary. If profit share of Kapil after 1 year is Rs. 1,40,000. Then find profit share of Pooja (excluding salary) at the end of the year?
(a) Rs. 1,62,400
(b) Rs. 1,70,000
(c) Rs. 1,32,400
(d) Rs. 1,30,000
(e) Rs. 1,44,400

Q100. From numbers 1 to 15 two no. are selected what is the probability that both the selected no. are even numbers.
(a) 0.20
(b) 0.30
(c) 0.25
(d) 0.35
(e) 0.40

Solutions

S1. Ans (b)
Sol. $\Rightarrow \frac{1}{4} \times \frac{296 \times 32}{?} = \frac{37}{\frac{1}{4} \times \frac{1}{4}}$

$\Rightarrow ? = \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{296}{37} \times 32$
$\Rightarrow ? = 4$

S2. Ans (b)
Sol. $\frac{\sqrt[3]{405 \times 315 \times 245}}{\sqrt{\frac{1}{3} \times 27}} = ?$
$\Rightarrow ? = \frac{\sqrt[3]{5 \times 81 \times 5 \times 63 \times 5 \times 49}}{3}$
$\Rightarrow ? = \frac{5 \times 7 \times 9}{3}$
$\Rightarrow ? = 105$

S3. Ans (d)
Sol. $\frac{20}{100} \times 145 - \frac{266}{119} \times \frac{17}{19} = ?^3$
$\Rightarrow ?^3 = 29 - 2$
$\Rightarrow ?^3 = 3^3$
$\Rightarrow ? = 3$

S4. Ans (e)
Sol. $\sqrt{81 \times \frac{1}{9} \times \frac{1}{9} \times 4} + \frac{182}{91} \times \frac{474}{237} + 8 = ?^{\frac{1}{2}}$
$\Rightarrow ?^{\frac{1}{2}} = 2 + 4 + 8$
$\Rightarrow ? = 196$

S5. Ans (a)
Sol. $6739 + 161 \times 5 - 75 \times 12 + \frac{20}{100} \times 120 - \frac{10}{100} \times 110 = ?$
$\Rightarrow ? = 6739 + 805 - 900 + 24 - 11$
$\Rightarrow ? = 6657$

S6. Ans.(b)
Sol.
$\sqrt{64 \times 36} + \frac{420}{6} - 540 = ? - 800$
$? = \sqrt{2304} + 70 - 540 + 800$
$? = 378$

S7. Ans.(a)
Sol.
$\frac{16}{100} \times 1600 + \frac{?}{100} \times 1200 = 20 \times 122$
$256 + ? \times 12 = 2440$
$? = \frac{2184}{12} = 182$

S8. Ans.(d)
Sol.
$(8)^3 + (15)^2 - (12)^2 = ? - 1220 - 1750$
$512 + 225 - 144 = ? - 2970$
$? = 3563$

S9. Ans.(e)
Sol.
$20 \times \sqrt{?} = \frac{64}{100} \times 400 + \frac{12}{100} \times 1200$
$20 \times \sqrt{?} = 256 + 144$
$\sqrt{?} = \frac{400}{20} = 20$
$? = 400$

S10. Ans.(c)
Sol.
$(?)^2 + \frac{14}{100} \times 1600 = 59 \times 12$
$(?)^2 + 224 = 708$
$(?)^2 = 484$
$? = 22$

S11. Ans(b)

Sol. $\frac{?}{100} \times 8000 + 1681 - \frac{30}{100} \times 4150 = 676$

$? = (676 - 436) \times \frac{100}{8000} \approx 3$

S12. Ans(b)

Sol. $\frac{250+?}{50} + 417 + 400 = 625 + 20 \times 10$

$? = (625 + 200 - 817) \times 50 - 250 \approx 150$

S13. Ans(e)

Sol. $484 + 12.5 \times 20 - 125 - ?^2 \times 4 = 225$

$? = \sqrt{\frac{734-350}{4}} \approx 10$

S14. Ans(c)

Sol. $\frac{9900}{11\times3} \times 34 \times 0.01 + 98 = \frac{80}{100} \times ?$

$? = \frac{200 \times 100}{80} \approx 250$

S15. Ans(d)

Sol. $\frac{5436}{302} + 18 + 54 + \frac{36}{100} \times 1000 = \frac{108}{6} \times ? + 216$

$? = \frac{(18 + 72 + 360 - 216)}{18} \approx 13$

S16. Ans(a)

Sol. $55\%\ of\ 900 + 70\%\ of\ 1050 = ?\%\ of\ 3000$

$\frac{55}{100} \times 900 + \frac{70}{100} \times 1050 = \frac{?}{100} \times 3000$

$495 + 735 = 30 \times ?$

$30 \times ? = 1230$

$? = 41$

S17. Ans(b)

Sol. $73823 - 34156 + 4756 + 6758 - 9849 = 41499 - 160 - ?$

$41332 = 41339 - ?$

$? = 7$

S18. Ans(d)

Sol. $\frac{5599}{1331} \times \frac{3773}{2036} \times \frac{88}{49} = ? - 6^2$

$14 = ? - 36$

$? = 50$

S19. Ans(c)

Sol. $84 \times \frac{1}{4} \div 21^2 + ? = \frac{7}{147} \times 21 - \frac{20}{21}$

$84 \times \frac{1}{4} \times \frac{1}{441} + ? = 1 - \frac{20}{21}$

$\frac{1}{21} + ? = \frac{1}{21}$

$? = 0$

S20. Ans(e)

Sol.

$\sqrt{5776} - \sqrt{1444} + \sqrt{729} = 43 + ?$

$76 - 38 + 27 = 43 + ?$

$?=65 - 43 = 22$

S21. Ans(c)

Sol.

$1396 + 412 - 2704 = ? - (31)^2$

$1396 + 412 - 2704 = ? - (31)^2$

$? = 961 - 896 = 65$

S22. Ans(a)

Sol.

$78 \times 26 \div 6 + 1262 = 1311 + (?)^2$

$2028 \div 6 + 1262 = 1311 + (?)^2$

$338 + 1262 = 1311 + (?)^2$

$(?)^2 = 1600 - 1311 = 289$

$? = \sqrt{289} = 17$

S23. Ans(a)

Sol.

$1484 \div 28 + 1462 \div 34 - 12 \times 7 = ?$

$?=53 + 43 - 84 = 12$

S24. Ans(c)

Sol.

$42.5 \times 15 + 37.5 \times 25 = 1420 + ?$

$637.5 + 937.5 = 1420 + ?$

$?= 1575 - 1420 = 155$

S25. Ans(b)

Sol.

$2450 + 3760 - 3830 = 6000 - ?$

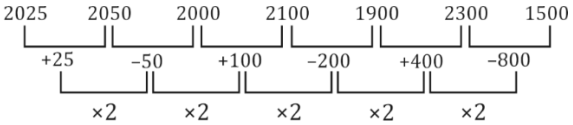
$2380 = 6000 - ?$

$?=6000 - 2380 = 3620$

S26. Ans.(b)

Sol. Wrong number = 2030

Pattern of series –

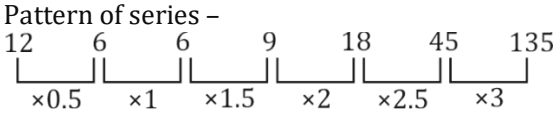


So, there should be 2025 in place of 2030.

S27. Ans.(d)

Sol. Wrong number = 10

Pattern of series –



So, there should be 12 in place of 10.

S28. Ans.(a)

Sol. Wrong number = 318

Pattern of series –

337 320 301 278 249 218 181

−17 −19 −23 −29 −31 −37

So, there should be 320 in place of 318.

S29. Ans.(d)

Sol. Wrong number = 820

Pattern of series –

75 100 200 425 825 1450 2350

+25 +100 +225 +400 +625 +900

$(5)^2$ $(10)^2$ $(15)^2$ $(20)^2$ $(25)^2$ $(30)^2$

So, there should be 825 in place of 820.

S30. Ans.(b)

Sol. Wrong number = 285

Pattern of series –

81 100 130 171 223 286 360

+19 +30 +41 +52 +63 +74

+11 +11 +11 +11 +11

So, there should be 286 in place of 285.

S31. Ans(a)

Sol. Wrong term = 1436

Pattern of series –

$-18 + (24)^2 = 558$

$558 + (20)^2 = 958$

$958 + (16)^2 = 1214$

$1214 + (12)^2 = 1358$

$1358 + (8)^2 = 1422$

$1422 + (4)^2 = 1438$

So, there should be 1438 in the place of 1436

S32. Ans.(c)

Sol. Wrong term = 309

Pattern of series

15 75 129 191 243 307 357

+60 +54 +62 +52 +64 +50

-6 +8 -10 +12 -14

So, there should be 307 in the place of 309.

S33. Ans(d)

Sol. Wrong term = 232

Pattern of series –

210 + 20 = 230

230 + 40 = 270

270 + 80 = 350

350 + 160 = 510

510 + 320 = 830

830 + 640 = 1470

So, there should be 230 in the place of 232.

S34. Ans(a)

Sol. Wrong term = 1040

Pattern of series –

$48 \times 3 = 144$

$144 \times 2.5 = 360$

$360 \times 2 = 720$

$720 \times 1.5 = 1080$

$1080 \times 1 = 1080$

$1080 \times 0.5 = 540$

So, there should be 1080 in the place of 1040.

S35. Ans(b)

Sol. Wrong term = 13184

Pattern of series –

$19 \times 3 - 1 = 56$

$56 \times 3 - 2 = 166$

$166 \times 3 - 4 = 494$

$494 \times 3 - 8 = 1474$

$1474 \times 3 - 16 = 4406$

$4406 \times 3 - 32 = 13186$

So, there should be 13186 in the place of 13184.

S36. Ans(a)

Sol. Wrong term = 1436

Pattern of series –

$-18 + (24)^2 = 558$

$558 + (20)^2 = 958$

$958 + (16)^2 = 1214$

$1214 + (12)^2 = 1358$

$1358 + (8)^2 = 1422$

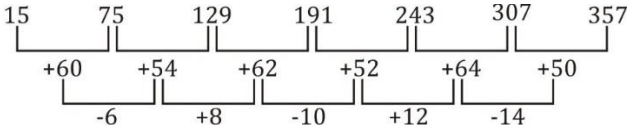
$1422 + (4)^2 = 1438$

So, there should be 1438 in the place of 1436

S37. Ans.(c)

Sol. Wrong term = 309

Pattern of series



So, there should be 307 in the place of 309.

S38. Ans(d)

Sol. Wrong term = 232

Pattern of series –

210 + 20 = 230

230 + 40 = 270

270 + 80 = 350

350 + 160 = 510

510 + 320 = 830

830 + 640 = 1470

So, there should be 230 in the place of 232.

S39. Ans(a)

Sol. Wrong term = 1040

Pattern of series –

48 × 3 = 144

144 × 2.5 = 360

360 × 2 = 720

720 × 1.5 = 1080

1080 × 1 = 1080

1080 × 0.5 = 540

So, there should be 1080 in the place of 1040.

S40. Ans(b)

Sol. Wrong term = 13184

Pattern of series –

19 × 3 − 1 = 56

56 × 3 − 2 = 166

166 × 3 − 4 = 494

494 × 3 − 8 = 1474

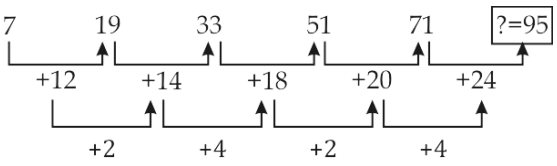
1474 × 3 − 16 = 4406

4406 × 3 − 32 = 13186

So, there should be 13186 in the place of 13184.

S41. Ans(a)

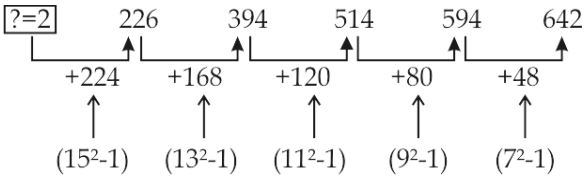
Sol. Pattern of series –



S42. Ans(d)

Sol.

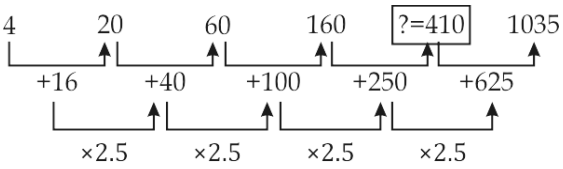
Pattern of series –



S43. Ans(a)

Sol.

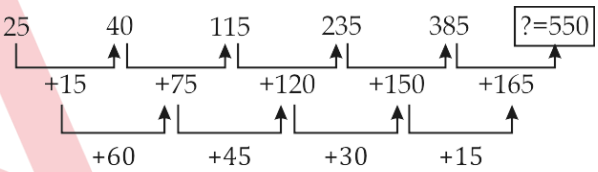
Pattern of series –



S44. Ans(e)

Sol.

Pattern of series –



S45.Ans(b)

Sol.

Pattern of series –

12 × 0.5 + 2 = 8

8 × 1 + 2 = 10

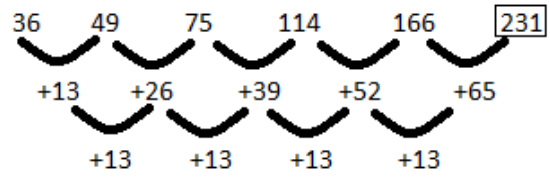
10 × 2 + 2 = 22

? = 22 × 4 + 2 = 90

90 × 8 + 2 = 722

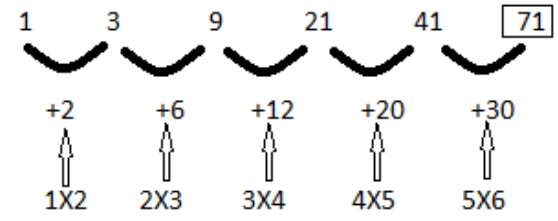
S46. Ans(c)

Sol.

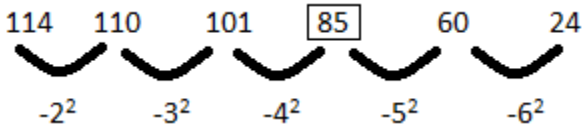


S47. Ans(b)

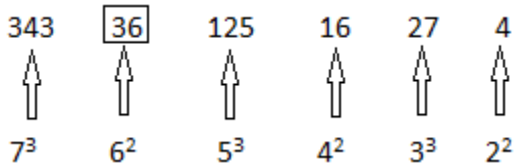
Sol.



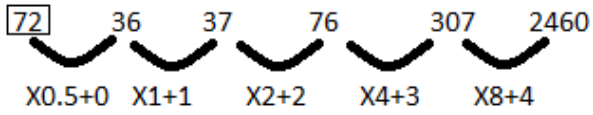
S48. Ans(d)
Sol.



S49. Ans(b)
Sol.

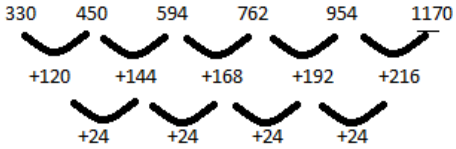


S50. Ans(e)
Sol.



S51. Ans(b)
Sol. Here, the pattern followed is
$220+(6^3-6)=430$
$430+(7^3-7)=766$
$766+(8^3-8)=1270$
$1270+(9^3-9)=1990$
$1990+(10^3-10)=2980$

S52. Ans(d)
Sol.



S53. Ans(a)
Sol. Here, the pattern followed is
$160 \times 0.5 = 80$
$80 \times 1.5 = 120$
$120 \times 2.5 = 300$
$300 \times 3.5 = 1050$
$1050 \times 4.5 = 4725$

S54. Ans(e)
Sol. Here, the pattern followed is
$10800 \div 6 = 1800$
$1800 \times 5 = 9000$
$9000 \div 4 = 2250$
$2250 \times 3 = 6750$
$6750 \div 2 = 3375$

S55. Ans(d)
Sol. Here, the pattern followed is
$(15^2+15)=240$
$(17^2+17)=306$
$(19^2+19)=380$
$(21^2+21)=462$
$(23^2+23)=552$
$(25^2+25)=650$

S56. Ans(e)
Sol.
Let the marked price be Rs 100x
Then SP=$100x \times \frac{8}{10} \times \frac{9}{10} = Rs\ 72x$
Let cost price be Rs y
ATQ
$\frac{72x-y}{100x-y} = 0.3$
$y = 60x$
Profit percent=$\frac{12x}{60x} \times 100 = 20\%$

S57. Ans(c)
Sol.
Let first number and second number be x and y respectively
Then, $45 \times \frac{x}{100} = 60 \times \frac{y}{100}$
3x=4y.....(i)
And $\frac{x+y}{2} = x - 10$
$x - y = 20 \ldots\ldots\ldots (ii)$
From (i) and (ii)
y=60
80% of second number=48

S58. Ans.(b)
Sol. 1st year interest $= 10000 \times \frac{20}{100} =$ Rs. 2000
2nd year interest $= (10000 + 2000) \times \frac{21}{100} =$ Rs. 2520
3rd year interest $= 14520 \times 0.20 =$ Rs 2904
Total Interest = 2000 + 2520+2904=Rs 7424

S59. Ans(d)
Sol.
Let present age of Chintu be 5x years
Then present age of Binny=8x years
And present age of Amit=6x years
ATQ
$8x - 5x - (8x - 6x)=6$
$x = 6$
Required average=40 years

S60. Ans(a)

Sol. Let the speed of boat in downstream be 8x km/hr
Then speed of boat in still water=5x km/hr
Speed of boat in upstream = 5x – (8x-5x) = 2x km/hr
ATQ
$\frac{30}{5} = 2x$
$x = 3$
Required time=$\frac{84}{24} = 3.5\ hrs.$

S61. Ans.(b)

Sol. Total quantity of acid1 in mixture D
$= 25 \times \frac{55}{100} + 15 \times \frac{63}{100}$
= 13.75+9.45
=23.20 lit
Let there is x % of acid1 in mixture C
ATQ
$\Rightarrow 23.20 + \frac{x}{100} \times 30$ =(100–48)% of (30+40)
$\Rightarrow 23.20+0.3x=\frac{52}{100} \times 70$
⇒ 23.20+0.3x=36.4
⇒ 0.3x=13.2
$\Rightarrow x = \frac{132}{3}$
x=44%

S62. Ans.(c)

Sol. Ratio of Total actual profit share of A, B and C
= 92000×12 : 115000 ×12 : 138000×12
= 4 : 5 : 6
Let actual profit of A, B and C be 4x, 5x and 6x respectively.
After distribution of C's profit, C got
$=6x\times \frac{50}{3} \times \frac{1}{100}$
= x
A and B got = (6x–x)×$\frac{3}{5}$ and (6x–x)×$\frac{2}{5}$ respectively
=3x and 2x respectively
Total actual profit = (4x+5x+6x)=15x
ATQ
2x=30000
15x=225000
∴ total actual profit = Rs. 225000

S63. Ans.(e)

Sol. Let purchasing price of bike for Manoj and Hemant be M and H respectively
ATQ
$\Rightarrow M\left[1-\frac{100}{17\times100}\right]^{16} = H\left[1-\frac{100}{17\times100}\right]^{18}$
$\Rightarrow \frac{M}{H} = \left[1-\frac{1}{17}\right]^2$
$\Rightarrow \frac{M}{H} = \frac{256}{289}$...(i)
Now, $H - M = 1320$
$H = 1320 + M$...(ii)
On solving (i) & (ii), we get:
$M = Rs.\ 10240$

S64. Ans.(a)

Sol. Total distance covered by Vikash =9+1=10 km.
Time taken by Vikash = 10×6
=60 min
So, time taken by Mohit = 60–4=56 min
Distance covered by Mohit = 9–1
=8 km
Speed of Mohit = $\frac{8}{56}$
=$\frac{1}{7}$ km/min.

S65. Ans.(c)

Sol. Let speed of current be C km/hr
So, speed of Boat in still water = 5C km/hr
After technical problem, speed of Boat (in still water)
$=5C \times \frac{4}{5} = 4C$
ATQ
$\Rightarrow \frac{16}{5C+C} + \frac{40}{4C+C} = \frac{56}{\frac{7}{20}\times60}$
$\Rightarrow \frac{16}{6C} + \frac{40}{5C} = \frac{56}{21}$
⇒ C = 4 km/hr.

S66. Ans.(b)

Sol. Required probability = $\frac{{}^6C_1 \times {}^2C_1}{{}^{52}C_2}$
$= \frac{6\times2}{\frac{52\times51}{1\times2}}$
$= \frac{6\times2}{26\times51}$
$= \frac{2}{221}$

S67. Ans.(d)

Sol. Let side of square be 'x' & side of equilateral triangle be 'y' .
ATQ,
x = $\frac{\sqrt{3}}{2} \times y$ [given]
y = $\frac{2x}{\sqrt{3}}$
Required ratio = $\frac{\frac{\sqrt{3}}{4}y^2}{x^2} = \frac{\sqrt{3}}{4} \times \left(\frac{2x}{\sqrt{3}}\right)^2 \times \frac{1}{x^2}$
$= \frac{\sqrt{3}}{4} \times \frac{4x^2}{3} \times \frac{1}{x^2}$
$= 1 : \sqrt{3}$

S68. Ans.(c)

Sol. Let amount invested by Deepak at C.I. be 'Rs.x'.

So, amount invested by Deepak at S.I. = Rs (47000 – x)

Now,

Equivalent rate of interest of 15% C.I. for 2 years = 15 + 15 + $\frac{15 \times 15}{100}$ = 32 .25%

ATQ,

$\frac{x \times 32.25}{100} - \frac{(47000 - x) \times 2 \times 12}{100} = 532.5$

32.25x + 24x = 1181250

x = 21000 Rs.

S69. Ans.(e)

Sol. Let present age of A be 'x' years.

So, present age of B = 2x years

And let present age of C be 'y' years.

ATQ,

$\frac{x + 2x}{2} = 24$

3x = 48

x = 16 years

Hence, Present age of B = 2x

= 32 years

Now,

$\frac{32 + y}{2} = 38$

y = 44 years.

So, required % = $\frac{(32 + 16) - 44}{(32 + 16)} \times 100$

$= \frac{4}{48} \times 100$

$= 8\frac{1}{3}\%$

S70. Ans.(a)

Sol. Let quantity of milk and water in vessel - A be '2x' and '3x' liters respectively.

And let quantity of milk and water in Vessel – B be '5y' and '3y' liters respectively.

ATQ,

$2x \times \frac{50}{100} + 5y \times \frac{40}{100} = 36$

$\Rightarrow x + 2y = 36$ ... (i)

Now,

$3x \times \frac{50}{100} + 3y \times \frac{40}{100} = 36$

1.5x + 1.2y = 36 ... (ii)

On solving (i) and (ii), we get:

y = 10 liters

x = 16 liters

So, required ratio = $\frac{3x}{3y}$

$= \frac{48}{30}$

= 8 : 5

S71. Ans(e)

Sol.

Given, cost price of A = Rs. x And SP= Rs 128

ATQ –

$x\left(1 + \frac{(x-20)}{100}\right) = 128$

$100x + x^2 - 20x = 128$

$x^2 + 80x - 12800 = 0$

$x^2 + 160x - 80x - 12800 = 0$

x(x + 160) – 80(x + 160)

x = Rs. 80(neglecting the negative value of x since amount can never be in negative)

Cost price of B = $80 \times \frac{125}{100}$ = Rs. 100

Price at which shopkeeper should sell B to make profit of 40% = $100 \times \frac{140}{100}$ = Rs. 140

S72. Ans(b)

Sol.

Let daily wage of P, Q&R be Rs. 21w, Rs. 16w & Rs. 18w respectively

And, Wages of P, Q&R for a weekday & Sunday be Rs.(21w + 125), Rs. (16w + 125) & Rs. (18w + 125) respectively

ATQ –

$\frac{(21w + 125)}{(16w + 125)} = \frac{26}{21}$

441w + 2625 = 416w + 3250

25w = 625

w = 25

Wage of P on a Weekday & Sunday = $21 \times 25 + 125 = Rs.650$

Wage of R on a Weekday & Sunday = $18 \times 25 + 125 = Rs.575$

Required difference = 650 – 575

= *Rs*. 75

S73. Ans(d)

Sol.

Let Veer invested = Rs. P

So, interest got by Veer after 10 years = Rs. P

ATQ –

$\frac{P \times 10 \times R}{100} = P$

R = 10%

Required amount = $X \times \left(1 + \frac{10}{100}\right)^3 = 5324$

1.331X = 5324

X = Rs. 4000

S74. Ans.(d)
Sol.
Required number of the ways
$= {}^{8}C_3 \times {}^{6}C_4$
$= \frac{8 \times 7 \times 6 \times 5!}{3! \times 5!} \times \frac{6 \times 5 \times 4!}{2! \times 4!}$
$= 840$

S75. Ans.(c)
Sol.
Let length of Train A be 'x' meters and speed of Train A be 'V' m/sec.
So,
$\frac{x}{V} = 9$
$x = 9V$ ...(i)
Now,
$\frac{x+180}{150 \times \frac{5}{18} - V} = 57.6$
$\Rightarrow \frac{3(x+180)}{125-3V} = 57.6$ ...(ii)
Put value of x in (ii)
$\frac{3(9V+180)}{125-3V} = 57.6$
$\Rightarrow \frac{3V+60}{125-3V} = 6.4$
$3V + 60 = 800 - 19.2V$
$\Rightarrow V = \frac{100}{3}$ meter/sec
Put value of V in (i)
$x = 9 \times \frac{100}{3}$
$x = 300\ meters$
Required time $= \frac{180+300}{\frac{100}{3}+150 \times \frac{5}{18}}$
$= \frac{480}{75}$
$= 6.4\ seconds$

S76. Ans.(d)
Sol. Let Capacity of tank be 144 litre.
So, efficiency of Ist Pipe = 4 litre / min
Efficiency of IInd Pipe = 3 litre /min
Efficiency of IIIrd pipe = 8 litre /min
ATQ,
First tank will be filled by pipe Ist & IInd and then emptied when pipe Ist, IInd & IIIrd together are opened
So, (4 + 3) × 16 = (8 – 4 – 3) t
$t = \frac{112}{1} = 112$ min.

S77. Ans.(a)
Sol.

	A	:	B	
Initially	8	:	5	] 3
	8 × 1	:	8 × 1	
Finally	8	:	8	]

3 units = 13 litres
16 units = $\frac{13}{3}$ × 16 litres
So, initially total quantity of liquid A = $\frac{8}{13} \times \frac{13}{3} \times 16$
$= \frac{128}{3}$ litres

Or

Let quantity of liquid A & liquid B in the container initially be 8x & 5x liters respectively.
ATQ,
$\frac{\left(8x - 13 \times \frac{8}{13}\right)}{5x + 13 - 13 \times \frac{5}{13}} = \frac{1}{1}$
$x = \frac{16}{3} liters$
So, required quantity = $\frac{16}{3} \times 8$
$= \frac{128}{3}\ liters$

S78. Ans.(d)
Sol. Let his average after 80 innings be 'x'
Atq,
80 × x + 0 = 81 × (x – 1)
80x = 81x – 81
x = 81
So, his new average = 81 – 1 = 80

S79. Ans.(b)
Sol. Let the distance covered by man between two places is 'D'
Atq.
$7 = \frac{D}{16} + \frac{D}{12}$
$7 = D\left[\frac{3+4}{48}\right]$
D = 48 km

S80. Ans.(c)
Sol. Let cost price of book be '100x'
So, Selling price of book = $100x \times \left(1 + \frac{50}{300}\right) = \frac{350}{3} x$
Mark price of book = $\frac{350}{3} x \times \frac{100}{87.5} = \frac{400}{3} x$
∴ Required Ratio = $\frac{100x}{\frac{400}{3}x}$
$= \frac{3}{4}$

S81. Ans (d)
Sol. Let total book = 100x
ATQ
$S.P\ of\ 40\%\ books = C.P\ of\ 80\%\ books$
$\frac{S.P}{C.P} = \frac{2}{1}$

Let C.P and S.P of a book be a and 2a respectively.

Then profit percent on selling 40% books = $\frac{2a-a}{a} \times 100 = 100\%$

S.P for 70% of remaining books = $a \times \frac{150}{100} = 1.5a$

Total S.P = $40x \times 2a + \frac{70}{100} \times 60x \times 1.5a = 143ax$

Actual profit % = $\frac{143ax-100ax}{100ax} \times 100$

$= 43\%$

S82. Ans (b)

Sol. Let efficiency of Shubham and Harvinder be S & H respectively.

ATQ

$5S + 9H = 12H + 3S$

$2S = 3H$

$\frac{S}{H} = \frac{3}{2}$

Let S & H be 3a & 2a respectively.

So, total work = $5 \times 3a + 9 \times 2a = 33a$

Time taken by Harvinder to complete the work while working alone = $\frac{33a}{2a}$

$= 16\frac{1}{2} days$

S83. Ans (e)

Sol. Required solution = $\frac{6}{15} \times \frac{6}{15} \times \frac{6}{15} + \frac{4}{15} \times \frac{4}{15} \times \frac{4}{15} + \frac{5}{15} \times \frac{5}{15} \times \frac{5}{15}$

$\Rightarrow \frac{216+64+125}{3375} = \frac{3}{25}$

S84. Ans (c)

Sol. Volume of large sphere = $\frac{4}{3}\pi R^3\ cm^3$

Volume of small sphere = $\frac{4}{3}\pi r^3\ cm^3$

ATQ

$\frac{4}{3}\pi R^3 = 64 \times \frac{4}{3}\pi r^3$

$\frac{R}{r} = \frac{4}{1}$

Let R and r be 4d and d respectively

Height of cone = $2a\ cm$

Volume of one cone = $\frac{1}{3}\pi\ a^2 \times 2a = \frac{2}{3}\pi a^3$

ATQ

$\frac{4}{3}\pi r^3 = 16 \times \frac{2}{3}\pi a^3$

$\frac{4}{3}\pi d^3 = 16 \times \frac{2}{3}\pi a^3$

$a = \frac{d}{2}$

Required ratio = $4d : \frac{d}{2} : d$

$\Rightarrow 8:1:2$

S85. Ans (a)

Sol. When answer is asked in percent, we do not need exact data we can use ratio

So, $\frac{ball}{bat} = \frac{3575}{2002} = 25:14$

Let total no. of ball be 25 and total no. of bat be 14

ATQ

For ball

$850c.p = 799s.p$

$\frac{c.p}{s.p} = \frac{47}{50}$

Let c.p of one ball be 47a and s.p of one ball be 50a

For bat

$777c.p = 987s.p$

$\frac{c.p}{s.p} = \frac{47}{37}$

Let c.p of one bat be 47a and s.p of one bat be 37a

Total c.p for Pankaj = $47a \times 25 + 47a \times 14 = 1833a$

Total s.p for Pankaj = $50a \times 25 + 37a \times 14 = 1768a$

Loss % = $\frac{1833a-1768a}{1833a} \times 100 \approx 4\%$

S86. Ans.(e)

Sol.

Ratio of milk and water in mixture

$= 80 \times \frac{3}{4} : 80 \times \frac{1}{4}$

$= 3 : 1$

Remaining water and milk in mixture —

Milk = $80 \times \frac{3}{4} - 24 \times \frac{3}{4}$

$= 60 - 18$

$= 42$ liter

Water = $80 \times \frac{1}{4} - 24 \times \frac{1}{4}$

$= 20 - 6$

$= 14$ liter

Let x liter of water added

$\frac{42}{14+x} = \frac{7}{13}$

$98 + 7x = 546$

$7x = 448$

$x = 64$ liter

S87. Ans (d)

Sol. Let l = slant height of the cone

h = height of the cone

H = height of cylinder

r = radius

ATQ

$\frac{\pi rl}{2\pi rH} = \frac{P}{8}$

$\Rightarrow \frac{l}{H} = \frac{P}{4}$

So, H = $\frac{60}{P}$

Now, h = $\sqrt{15^2 - 9^2} = 12\ cm$

$\Rightarrow \frac{1}{3}\pi r^2 h + \pi r^2 H = 1944\pi$

$\frac{1}{3} \times 81 \times 12 + 81 \times \frac{60}{P} = 1944$

$\therefore P = 3$

S88. Ans (b)

Sol. Let total no. of mobiles be y

$\Rightarrow y + 9 = 44$

So, number of mobiles = $y = 35$

And number of laptops = 9

Let cost price of a laptop and a mobile be Rs 2P and P respectively

ATQ

Total selling price = $\frac{4}{5} \times 35 \times (P + 3000) + 6 \times 2P \times \frac{150}{100} = Rs.636000$

$\Rightarrow$ P = 12000

So, cost price of laptop and mobiles are Rs 24000 and Rs 12000 respectively.

Total cost price = $35 \times 12000 + 9 \times 24000 = Rs\ 636000$

$\therefore$no profit no loss occurs

S89. Ans (a)

Sol. Let the son with more money have Rs 10x and the son with less money have Rs 7x.

ATQ

$936 = \frac{10x \times 18 \times 2}{100} - 7x\left[\left(1 + \frac{20}{100}\right)^2 - 1\right]$

$\Rightarrow x = 1800$

Interest earned by son with less money = $7 \times 1800\left[\left(1 + \frac{20}{100}\right)^2 - 1\right]$

= Rs 5544

S90. Ans (b)

Sol. Time taken by Kunal to reach stopping point = $\frac{15}{50} \times 60 = 18\ minutes$

Kunal stays at this point for 12 min so total time = 18 + 12 =30 minutes

Distance covered by Kunal before Hemant leaves point B = $\frac{30}{60} \times 50 + 15 = 40\ km$

Time taken by Hemant to reach his stopping point = $\frac{15}{60} \times 60 = 15\ minutes$

Hemant stays at this point for 12 min so total time = 15 + 12 =27 minutes

Distance covered by Kunal in 27 minutes = $\frac{27}{60} \times 50 = 22.5\ km$

Now the distance remaining is= 150 – (40 +22.5 +15) = 72.5 km

Time taken by them to meet each other in rest of distance = $\frac{72.5}{50+60} = \frac{29}{44}\ hour$

Distance between point A and meeting point =40 + 22.5 + $50 \times \frac{29}{44} = \frac{1050}{11} km$

S91. Ans.(b)

Sol. Amount of loss incurred on selling 1st Car = $\left[52510 \times \frac{100}{89} - 52510\right]$

= 59000 – 52510 = Rs. 6490

Let cost price of second car be Rs. 20x.

Selling price of second car will be = $20x \times \frac{105}{100} = Rs.21x$

ATQ,

$21x - 20x = 6490$

$x = 6490$

$20x = Rs.129800$

S92. Ans.(a)

Sol. Let length of train – A & train – B be '5x' & '6x' meters respectively.

And let speed of train – A & train – B be 'V_1 m/s' & 'V_2 m/s' respectively,

ATQ,

$\frac{5x + 400}{36} = V_1$ ... (i)

And, $V_2 - V_1 = \frac{5x + 6x}{66}$

$V_2 - V_1 = \frac{x}{6}$

$V_1 = V_2 - \frac{x}{6}$ ... (ii)

Now,

$\frac{6x}{\frac{72}{7}} = V_2$

$\frac{6x \times 7}{72} = V_2$

$\frac{7x}{12} = V_2$ ... (iii)

On solving (ii) and (iii), we get:

$V_1 = \frac{5x}{12}$ ... (iv)

On solving (i) and (iv), we get:

x = 40 m

So, length of train – A = 5x = 200 m

And speed of train – A = $\frac{5x}{12} = \frac{200}{12} = \frac{50}{3}$ m/sec

Now, required time = $\frac{200}{\frac{50}{3}}$ = 12 seconds.

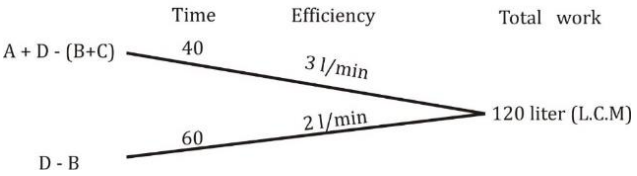
S93. Ans.(a)

Sol. Let efficiency of B be 'y liters/minute' and let efficiency of C be '4x liters/minute.'

So, efficiency of A = $4x \times \frac{125}{100}$ = 5x liters/minute

and efficiency of D = 4x × 2= 8x liters/minute.

Now,



Now,

5x + 8x – (y + 4x) = 3

9x – y = 3 ... (i)

And

8x – y = 2 ... (ii)

On solving (i) & (ii), we get:

x = 1, y = 6

Hence efficiency of A = 5x = 5 l/min

And efficiency of C = 4x = 4 l/min.

So, required time = $\frac{120}{(5-4)}$ = 120 minutes

S94. Ans.(d)

Sol. Possible outcomes= 9 [(1,4) (1,5)(2,3) (2,4)(3,2)(3,3)(4,1)(4,2)(5,1)]

So, required probability = $\frac{9}{36} = \frac{1}{4}$

S95. Ans.(b)

Sol. Let present age of A be x years and present age of B be y years.

So, present age of C = (y + 15) years

ATQ,

(y + 15) = (x + y) –9

x = 24 years

Now,

2(x + 6) = y + 6

60 = y + 6

y = 54 years

Hence, present age of C = y + 15 = 69 years

So, present age of D = $\frac{24+54+69}{3} - 4 = 49 - 4 = 45$ years

S96. Ans (a)

Sol. ATQ,

Water enter into ship in 1 hour = 15 tons

Water thrown out by pumps in 1 hour = 10 tons

Total time to sink ship in water = $\frac{40}{5} = 8$ hours

So, required average speed = $\frac{108}{8} = 13.5\ kmph$

S97. Ans (e)

Sol. Let efficiency of A and B be x units/day and y units/day respectively.

ATQ

$(x+y) \times 6 = \left(x \times \frac{4}{5} + y \times \frac{13}{10}\right) \times 6$

$10x + 10y = 8x + 13y$

2 x = 3 y

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

Now, let x = 3a and y = 2a

Total work = $(3a + 2a) \times 6 = 30a$ units

$Required\ days = \frac{30a}{3a+2a\times2} = 4\frac{2}{7} days$

S98. Ans (c)

Sol.

Let percentage of tea in each of the two initial mixture be x%

Total quantity of tea in resultant mixture = $\frac{x}{100} \times 240 + \frac{x}{100} \times 360 = 6x$

ATQ

$6x = \frac{1}{3} \times (240 + 360) \Rightarrow x = 33\frac{1}{3}\%$

Now, total quantity of sugar in resultant mixture =

$= \left(240 - \frac{80}{300} \times 240 - \frac{1}{3} \times 240\right) + \frac{35}{100} \times 360 = 222kg$

S99. Ans (d)

Sol. Ratio of profit share of Kapil and pooja

$= \frac{80000\times8+120000\times4}{100000\times4+80000\times8} = \frac{14}{13}$

Let total profit be Rs. P

Annual salary of Pooja $= 2700 \times 12 = Rs.\ 32{,}400$

ATQ

Total profit earned by Kapil

$= \frac{14}{27} \times (P - 32400) = 140000$

Total profit, P = Rs. 302400

So, required amount $\frac{13}{27} \times (302400 - 32400)$

$= Rs.\ 1{,}30{,}000$

S100. Ans(a)

Sol. required probability = $\frac{7}{15} \times \frac{6}{14} = 0.20$