200 Important Quant Questions PDF for IBPS RRB PO & Clerk | Quant | PDF 1

Directions (1-20): What should come in place of question mark (?) in the following questions? Find the exact value.

Q1. ? + 865 -395 = 169 × 3 + 178
(a) 205
(b) 215
(c) 225
(d) 235
(e) 245

Q2. 38% of 550 + ?% of 700 = 601
(a) 86
(b) 76
(c) 46
(d) 66
(e) 56

Q3. $\frac{?\times 8^4}{28^2} = 16^2$
(a) 343
(b) 35
(c) 49
(d) 196
(e) 63

Q4. $?\times \frac{7}{13} = \frac{1575}{195} \div \frac{9}{16}$
(a) $\frac{80}{3}$
(b) $\frac{35}{2}$
(c) $\frac{102}{13}$
(d) 28
(e) 49

Q5. $3\frac{1}{2}\%\ of\ ? = \sqrt{28^2 + 35 \times 28}$
(a) 1180
(b) 1200
(c) 1240
(d) 1300
(e) 1400

Q6. $3\frac{1}{2} \times 3\frac{1}{7} + 5\frac{3}{4} \div \frac{46}{3} = ?$

(a) $13\frac{2}{5}$

(b) $11\frac{3}{8}$

(c) 13

(d) None of these

(e) 11

Q7. $1280 \div 2^3 + 1220 \div 2^2 - 182 = ?$

(a) None of these

(b) 263

(c) 283

(d) 183

(e) 253

Q8. $\sqrt{123 \times 8 + 2389 - 1164} = ?$

(a) 62

(b) 47

(c) 43

(d) 53

(e) 57

Q9. $(13 + 2\sqrt{5})^2 = ?\sqrt{5} + 189$

(a) 26

(b) 25

(c) 52

(d) 130

(e) None of these

Q10. $8\sqrt{?} \div 14 \times 3 + 9 = 21$

(a) 7

(b) 49

(c) 64

(d) 196

(e) None of these

Q11. $7\frac{4}{3} + 3\frac{1}{2} + 5\frac{2}{3} = ? + 4\frac{3}{5} - 7\frac{1}{2} + 11\frac{2}{5}$

(a) 10

(b) 9

(c) 95

(d) 105

(e) 11

Q12. $\frac{473}{903} \times 63^2 - 27 \times 52 = ?$
(a) 615
(b) 625
(c) 650
(d) 675
(e) 685

Q13. $3\frac{7}{9} \times 1\frac{10}{17} + 5 = ?$
(a) 6
(b) 15
(c) 11
(d) 9
(e) None of these

Q14. $\frac{3}{5}\ of\ \frac{5}{9}\ of\ \frac{2}{7}\ of\ 9450 = ?$
(a) 960
(b) 480
(c) 450
(d) 900
(e) None of these

Q15. $66\%\ of\ 350 + ? = \frac{5}{8}\ of\ 1256$
(a) 521
(b) 496
(c) 554
(d) 568
(e) 544

Q16. $\sqrt{12.25} \times 18 - (?)^2 = (6)^2 + \sqrt{4}$
(a) 7
(b) 6
(c) 5
(d) 4
(e) 3

Q17. $(1250 + 1725) \div (825 + 365) = ?$
(a) 1.5
(b) 2.5
(c) 1
(d) 2.25
(e) 2.75

Q18. $\sqrt{625} \div \sqrt{16} \times 6 = ?\%$ of 300
(a) 15
(b) 12.5
(c) 17.5
(d) 10
(e) 8.5

Q19. $26 \times 15 + 310 - (15)^2 = 25\%$ of ?
(a) 1600
(b) 1800
(c) 1900
(d) 1500
(e) 1700

Q20. $\sqrt{81} \times \sqrt{625} + 1225 = (?)^2 - 150$
(a) 50
(b) 45
(c) 35
(d) 30
(e) 40

Q21. $4900 \div 28 \times 444 \div 12 - 6450 = (?)^2$
(a) 6
(b) 7
(c) 5
(d) 4
(e) 8

Q22. 38% of 250 – 85% of 560 + 13 × ?= 61
(a) 34
(b) 26
(c) 12
(d) 28
(e) 32

Q23. $2\frac{1}{9} \times 1\frac{2}{19} \div 2\frac{1}{3} - \frac{1}{2} = ? - 1\frac{1}{2}$
(a) $\frac{5}{2}$
(b) 4
(c) $\frac{3}{2}$
(d) $\frac{1}{2}$
(e) 2

Q24. $\sqrt{?} \times 12 - 26\%$ of $1650 + 19 = 13 \times 34$
(a) 4900
(b) 5041
(c) 5329
(d) 5476
(e) 5625

Q25. 53.5% of $720 \times \left[\frac{\sqrt{676}}{\sqrt{784}} \div \frac{39}{\sqrt{3969}} \times \frac{\sqrt[3]{125}}{\sqrt[3]{729}}\right] = ?$
(a) 281
(b) 342
(c) 298
(d) 321
(e) 441

Q26. $575 \times 24 \div 8 - (5)^3 = (?)^2$
(a) 40
(b) 45
(c) 50
(d) 55
(e) 35

Q27. $\frac{625}{5} \times \frac{34}{8.5} \times \frac{62.5}{12.5} - \frac{?}{4} = 2000$
(a) 1850
(b) 2100
(c) 2050
(d) 1250
(e) 2000

Q28. $\frac{?}{25} \times \sqrt{16} - 24 \times 4 + \sqrt[3]{125} = (5)^2$
(a) 775
(b) 725
(c) 750
(d) 760
(e) 780

Q29. $336 + 744 - 180 + 4 \times 31 = (?)^2$
(a) 32
(b) 30
(c) 28
(d) 34
(e) 36

Q30. $12.5 \times 12 + ? - \frac{380}{5} = (18)^2$
(a) 215
(b) 275
(c) 225
(d) 250
(e) 235

Direction (31 – 50): What approximate value should come in the place of question (?) marks in the given question?

Q31. $8399.99 \times 14.996 \div 374.982 + \sqrt{16.011} = ?$
(a) 564
(b) 340
(c) 320
(d) 324
(e) 384

Q32. $\sqrt{2499.99} + 14.97\% \ of \ 14 = ?$
(a) 40
(b) 45
(c) 52
(d) 58
(e) 64

Q33. 24.987% × 639.97 + 45.21% of 359 = ?
(a) 358
(b) 378
(c) 322
(d) 302
(e) 288

Q34. 33.30003% of 509.99 = ?
(a) 140
(b) 185
(c) 155
(d) 170
(e) 100

Q35. 74.79% of 1344.11 + 12.48% of 128.20 = ?
(a) 1048
(b) 1024
(c) 1072
(d) 1096
(e) 1120

Q36. $\sqrt[3]{8.006} \times (3.11)^2 - \frac{?}{11.09} = \sqrt{80.76}$
(a) 65
(b) 76
(c) 99
(d) 83
(e) 109

Q37. $1698.11 + 212.83 + (?)^2 = 2079.75$
(a) 13
(b) 9
(c) 11
(d) 5
(e) 7

Q38. $\frac{2\times(6.03)^2}{?} - \frac{(7.97)^2}{?} = (2.02)^2$
(a) 14
(b) 5
(c) 4
(d) 7
(e) 2

Q39. 16.07% of 1300 + 31.96 % of 1500 = ?
(a) 604
(b) 688
(c) 576
(d) 784
(e) 632

Q40. $(13.17)^2 - (15.93)^2 + (7.13)^2 = ?$
(a) 57
(b) 34
(c) –27
(d) –38
(e) –49

Q41. 21.11% of 1299.89 + 5×? = 52.12% of 4399.98
(a) 415
(b) 408
(c) 362
(d) 398
(e) 403

Q42. 2.93 × 4.98+ 54.88 ÷ 4.98 + ? = 78.12% of 199.11
(a) 130
(b) 110
(c) 105
(d) 140
(e) 150

Q43. $\frac{(3.99\times ?)+29.88}{24.92} + 1149.92 \div 5 = 319.98$

(a) 555
(b) 4282
(c) 569
(d) 525
(e) 502

Q44. $16.004\sqrt{?} + 68.899\sqrt{?} - 10.001\sqrt{?} = \frac{75.11}{33.99} \times (?)$

(a) 1225
(b) 961
(c) 1024
(d) 729
(e) 1156

Q45. 56.08% of 149.92 + $\sqrt{28.02 \times 6.98} - 11\frac{1}{9}\% \ of \ 998.9 = ?$

(a) 17
(b) -13
(c) 8
(d) -16
(e) 22

Q46. $\sqrt{63.82 \times 36.01}$ + 419.92 ÷ 5.84 – 540 = ? – 799.98

(a) 426
(b) 378
(c) 526
(d) 328
(e) 448

Q47. 15.812% of 1600.125 + ? % of 1199.98 = 19.88 × 121.98

(a) 182
(b) 142
(c) 326
(d) 286
(e) 216

Q48. $(7.98)^3 + (14.88)^2 - (12.01)^2$ = ? – 1219.812 – 1749.98

(a) 3643
(b) 3425
(c) 3416
(d) 3563
(e) 3521

Q49. $19.825 \times \sqrt{?} = 63.91\%$ of $399.98 + 11.95\%$ of 1200.01
(a) 300
(b) 500
(c) 420
(d) 350
(e) 400

Q50. $(?)^2 + 14.01\%$ of $1599.98 = 59.01 \times 12.025$
(a) 18
(b) 28
(c) 22
(d) 36
(e) 32

Direction (51-70): What will come at the place of question(?) marks in the following number series:

Q51. 5, 8, 14, 26, 50, ?
(a) 102
(b) 100
(c) 99
(d) 98
(e) 96

Q52. 2, 4, 10, 22, 42, ?
(a) 65
(b) 68
(c) 70
(d) 72
(e) 74

Q53. 3, 2, 3, 8, 36, ?
(a) 288
(b) 290
(c) 294
(d) 296
(e) 298

Q54. 32, 64, 16, 128, 8, ?
(a) 64
(b) 128
(c) 256
(d) 512
(e) 1024

Q55. ?, 17, 89, 359, 1079, 2159
(a) 2
(b) 3
(c) 4
(d) 5
(e) 6

Q56. 12, 7, 8.5, 14.75, ?, 83
(a) 30
(b) 24
(c) 32
(d) 36
(e) 48

Q57. 12, 78, 395, 1584, 4755, ?
(a) 9512
(b) 9516
(c) 9518
(d) 9520
(e) 9580

Q58. 26, 53, 214, 1287, 10300, ?
(a) 95000
(b) 100005
(c) 103000
(d) 101005
(e) 103005

Q59. 4187, 2857, 2129, 1787, 1663, ?
(a) 1647
(b) 1642
(c) 1627
(d) 1637
(e) 1630

Q60. 27, 27, 54, 18, 72, ?
(a) 19.6
(b) 16.8
(c) 18.8
(d) 12.8
(e) 14.4

Q61. 6, ?, 94, 168, 262, 376
(a) 46
(b) 40
(c) 48
(d) 42
(e) 44

Q62. 72, 136, 161, 377, 426, ?
(a) 938
(b) 625
(c) 728
(d) 972
(e) 826

Q63. 120, 300, 483, 672, 873, ?
(a) 1218
(b) 1348
(c) 1224
(d) 1098
(e) 1080

Q64. ?, 48, 144, 36, 180, 30
(a) 92
(b) 78
(c) 86
(d) 96
(e) 72

Q65. 37, 39, 81, 247, ?, 4971
(a) 723
(b) 978
(c) 842
(d) 843
(e) 993

Q66. 2, 3, 3, 4.5, 4.5, ?
(a) 18
(b) 9
(c) 12
(d) 6.75
(e) 11.5

Q67. 1, 12, 133, ?, 16105
(a) 399
(b) 1330
(c) 1464
(d) 900
(e) 1272

Q68. 64, 65, 69, 78, ?, 119
(a) 82
(b) 94
(c) 87
(d) 91
(e) 58

Q69. 16, 81, 196, 361, 576, ?
(a) 625
(b) 676
(c) 729
(d) 784
(e) 841

Q70. 2, 10, 30, 68, 130, ?
(a) 222
(b) 260
(c) 274
(d) 286
(e) 296

Directions (71-80): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer
(a) if x>y
(b) if x<y
(c) if x = y or no relation can be established between x and y
(d) if x ≤y
(e) if x≥y

Q71. I. $2x^2-17x+36=0$
II. $3y^2-19y+30=0$

Q72. I. $4x^2-35x+75=0$
II. $6y^2-47y+90=0$

Q73. I. $x^2+15x+50=0$
II. $y^2-5y-50=0$

Q74. I. $\sqrt{(10+x)(10-x)}=8$
II. $y=\sqrt{64}$

Q75. I. $x^2-6x-40=0$
II. $y^2+10y+24=0$

Directions (76-80): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer
(a) if x>y
(b) if x≥y
(c) if x<y
(d) if x ≤y
(e) if x = y or no relation can be established between x and y.

Q76. (i) $8x^2+18x-11=0$
(ii) $4y^2+17y+15=0$

Q77. (i) $3x^2 - 32x + 64 = 0$
(ii) $y^2 - 17y + 72 = 0$

Q78. (i) $2x^2 + 8x - 24 = 0$
(ii) $y^2 + 13y + 42 = 0$

Q79. (i) $2x^2 - 15x + 22 = 0$
(ii) $3y^2 - 21y + 18 = 0$

Q80. (i) $x^2 - 30x + 144 = 0$
(ii) $y^2 - 50y + 624 = 0$

Directions (81-90): Find the wrong number in the following number series questions

Q81. 100, 142, 212, 310, 436, 595, 772
(a) 142
(b) 595
(c) 310
(d) 772
(e) 436

Q82. 72, 80 , 144 , 360 , 864, 1872, 3600
(a) 360
(b) 144
(c) 80
(d) 864
(e) 1872

Q83. 12 , 14 , 31, 96, 393, 1971, 11833
(a) 393
(b) 31
(c) 96
(d) 1971
(e) 11833

Q84. 132, 156, 182 , 210, 240 , 272, 310
(a) 132
(b) 272
(c) 210
(d) 182
(e) 310

Q85. 16000, 8000, 24000 , 6000 , 30000, 7500, 35000
(a) 8000
(b) 7500
(c) 30000
(d) 6000
(e) 35000

Q86. 102, 83, 66, 50, 38, 27, 18
(a) 102
(b) 83
(c) 38
(d) 50
(e) 66

Q87. 2, 12, 36, 80, 150, 251, 392
(a) 36
(b) 80
(c) 251
(d) 392
(e) 150

Q88. 2, 3, 5, 7, 11, 15, 17
(a) 3
(b) 11
(c) 15
(d) 17
(e) 7

Q89. 11, 22, 34, 47, 61, 77, 92
(a) 77
(b) 61
(c) 92
(d) 22
(e) 34

Q90. 2, 6, 11, 23, 47, 95, 191
(a) 6
(b) 11
(c) 47
(d) 2
(e) 23

Direction (91–95): Given below table shows total employee of five companies prefer own vehicle for going office and percentage of employee prefer Metro & Bus for going office. Read the data carefully and answer the questions.

Companies	Number of employee prefer own vehicle	Percentage of employee prefer Metro	Percentage of employee prefer Bus
P	92	68%	24%
Q	39	60%	35%
R	192	55%	30%
S	91	70%	16%
T	110	72.5%	15%

Note : There is only there mode of transport to reach office.

Q91. What is the difference between employees preferred metro from company S & T together to employees preferred bus from company T, P & S together?
(a) 571
(b) 581
(c) 561
(d) 589
(e) 597

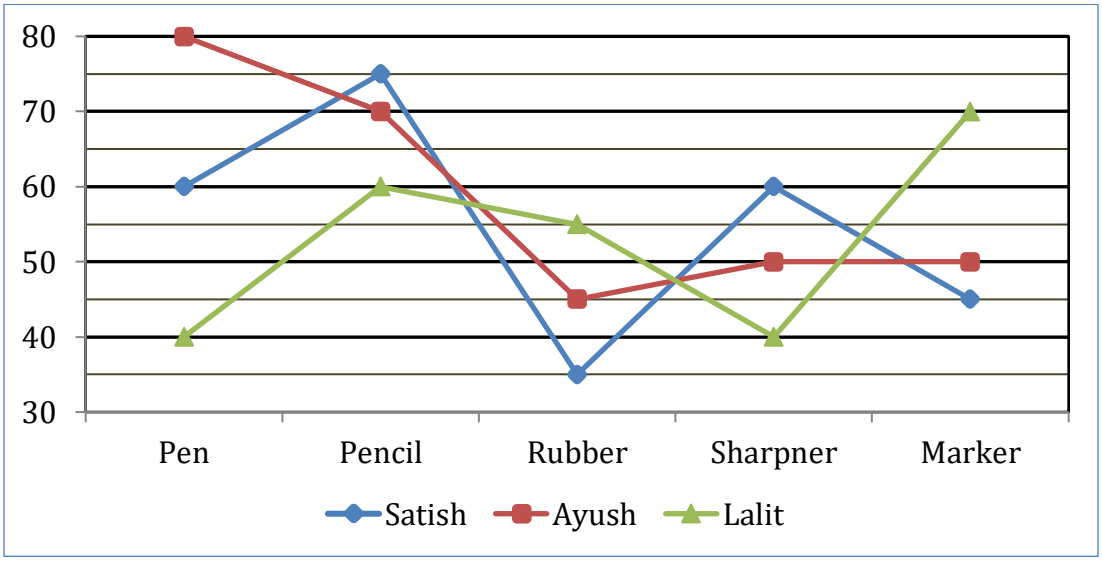
Q92. Find the average number of employee in P & S ?
(a) 950
(b) 750
(c) 800
(d) 900
(e) 1050

Q93. If in an another company 'A' number of employee prefer metro is 25% more than number of employee prefer metro from Q and employee prefer metro from company 'A' is 45% of total employee in that company. Find the total number of employee in company T is what percent less than the total employee in company 'A'?
(a) $32\frac{4}{13}\%$
(b) $34\frac{4}{13}\%$
(c) $38\frac{4}{13}\%$
(d) $42\frac{4}{13}\%$
(e) $36\frac{4}{123}\%$

Q94. Find the ratio between total employee prefer bus from company R and total employee prefer bus from company S?
(a) 48 : 19
(b) 48 : 13
(c) 48 : 23
(d) 48 : 11
(e) 48 : 7

Q95. Find total number of employee prefer metro from P,Q and R ?
(a) 1954
(b) 1855
(c) 1654
(d) 2014
(e) 1964

Direction (96-100): Line chart given below shows number of five type of article sold by three different sellers. Study the data carefully & answer the following.



Q96. Pen, Pencil and Sharpener sold by Satish is what percent of the Sharpener sold by all the sellers together?
(a) 120%
(b) 130%
(c) 140%
(d) 125%
(e) 135%

Q97. Find the ratio of rubber sold by all three sellers together to markers sold by all three sellers together
(a) 7 : 10
(b) 8 : 11
(c) 9 : 11
(d) 3 : 4
(e) 9 : 13

Q98. Average number of articles sold by Ayush is how much more than average number of article sold by Satish.
(a) 10
(b) 8
(c) 5
(d) 6
(e) 4

Q99. Rubber sold by Lalit are of two types (type A and type B). Type B rubber sold by Lalit is 20% more than type A sold by Lalit. Find total number of type 'B' rubbers sold by Lalit.
(a) 40
(b) 30
(c) 35
(d) 25
(e) 45

Q100. If Price of Pen is Rs. 4 while price of Pencil is Rs.6, then find total revenue earned by Lalit is how much more/Less then total revenue earned by Satish by selling pen and pencil together?
(a) 110
(b) 130
(c) 150
(d) 170
(e) 190

Direction (101-105): Study the table carefully & answer the following questions. Table given below shows the percentage of players who scored runs in each tournament.
Total number of Players = 600
Note → All the 600 players played all the matches in each tournament.

Runs	Tournament A	Tournament B	Tournament C
More than 60	25%	25%	20%
More than 40	35%	30%	30%
More than 20	80%	60%	70%

Q101. Find the ratio between no. of players who scored more than 60 in tournament B to the no. of players who scored less than or equal to 20 in tournament B & C together?
(a) 7 : 15
(b) 5 : 14
(c) 4 : 15
(d) 2 : 5
(e) 3 : 5

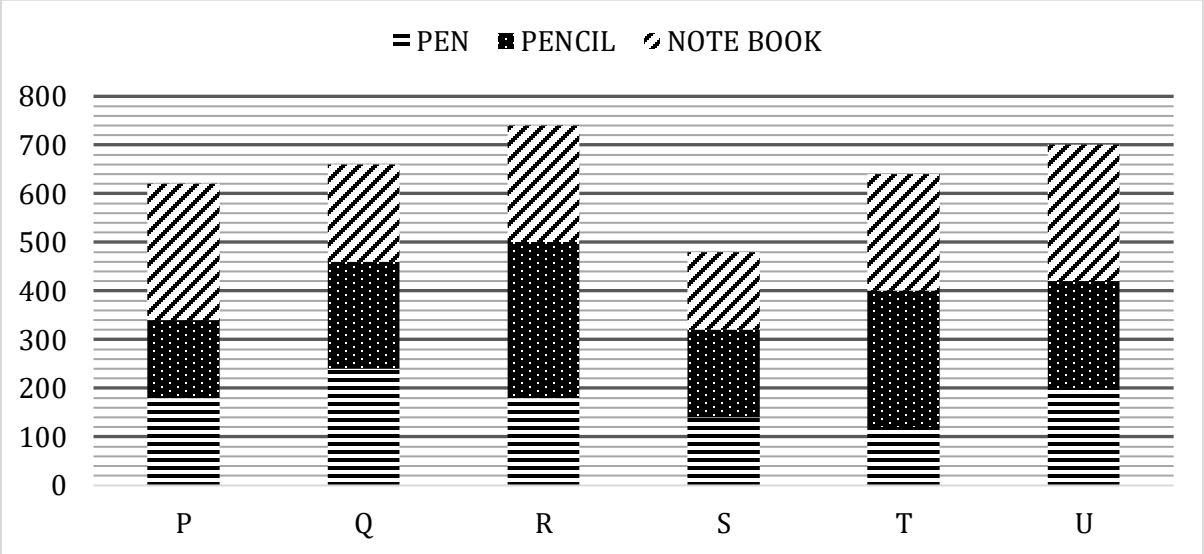
Q102. No. of players who scored more than 40 in tournament A are how much more or less than total no. of players who scored less than or equal to 40 in tournament C?
(a) 180
(b) 300
(c) 260
(d) 240
(e) 210

Q103. No. of players who scored less than or equal to 40 in tournament B is what percent more or less than the no. of players who scored more than 60 in tournament A & B together?
(a) 65%
(b) 50%
(c) 40%
(d) 55%
(e) 45%

Q104. Find the average number of players in all three tournaments who scored more than 20?
(a) 360
(b) 450
(c) 320
(d) 380
(e) 420

Q105. What is total no. of players who scored more than 60 in all the three tournaments?
(a) 420
(b) 540
(c) 560
(d) 480
(e) 470

Directions (106 – 110): Given below the bar graph that shows total three stationary items sold by six different stationary shops. Read the data carefully and answer the questions:



Q106. Total pens sold by P,R & T together is what percent of total note books sold P & U together?
(a) $85\frac{5}{7}\%$
(b) $83\frac{5}{7}\%$
(c) $87\frac{5}{7}\%$
(d) $81\frac{5}{7}\%$
(e) $79\frac{5}{7}\%$

Q107. Find the ratio between total pencils sold by R & S together to total pencils sold by Q & U together?
(a) 25 : 21
(b) 25 : 22
(c) 25 : 19
(d) 25 : 17
(e) 25 : 13

Q108. Total note books sold by P & U together is what percent more than the total pens sold by R & T together?

(a) $84\frac{2}{3}\%$

(b) $80\frac{2}{3}\%$

(c) $86\frac{2}{3}\%$

(d) $88\frac{2}{3}\%$

(e) $82\frac{2}{3}\%$

Q109. Find difference between average number of pens sold by P, Q & T and average number of note book sold by T & U?

(a) 60

(b) 40

(c) 100

(d) 80

(e) 120

Q110. Find difference between total number of pencils sold by Q, S & U together and total number of note book sold by P, R & T together?

(a) 180

(b) 160

(c) 140

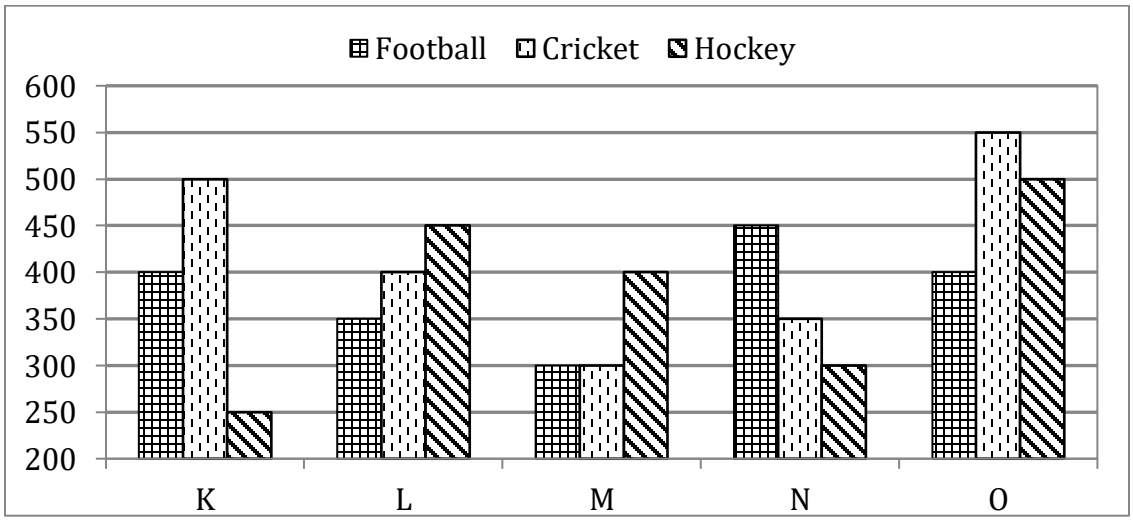
(d) 200

(e) 120

Directions (111-115): Study the following bar graph and answer the questions that follow.

Given below is the bar graph which shows the number of students playing three different games in five colleges in year 2014.

NOTE- one student plays only one sport



Q111. If $11\frac{1}{9}\%$ of students playing Hockey of college L are females then, number of males playing Hockey from same college is what percent of average number of students playing Hockey from college M & O ?
(a) $88\frac{8}{9}\%$
(b) $63\frac{1}{3}\%$
(c) $68\frac{8}{9}\%$
(d) $72\frac{2}{7}\%$
(e) $82\frac{2}{3}\%$

Q112. If $14\frac{2}{7}\%$ of student playing Cricket of college N left playing cricket and started playing Football in same college then find the ratio of number of student playing football of college N and M together to the number of student playing Cricket of college K and N together?
(a) 3 : 2
(b) 1 : 2
(c) 1 : 1
(d) 1 : 3
(e) 2 : 1

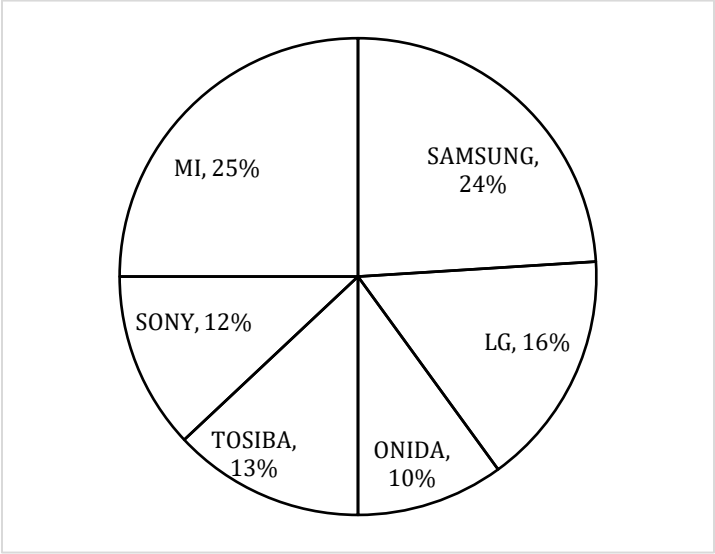
Q113. Average no. of students playing Hockey of college K, L and O is how much more than average number of students playing football of college K, L & M ?
(a) 120
(b) 50
(c) 80
(d) 40
(e) 100

Q114. Total number of student playing Cricket of college L and M together are what percent more/less than total number of student playing Hockey of college K and M together?
(a) $32\frac{1}{3}\%$
(b) $17\frac{9}{13}\%$
(c) $12\frac{3}{13}\%$
(d) $23\frac{2}{3}\%$
(e) $7\frac{9}{13}\%$

Q115. If total number of students in college K in year 2015 is increased by 20% percent with respect to year 2014 and the ratio of student playing Football, Cricket and Hockey becomes 5 : 2 : 3 respectively then find the average number of students playing football in same college K in year 2014 and 2015 ?
(a) 640
(b) 525
(c) 625
(d) 545
(e) 454

Directions (116-120): Given below pie chart show percentage distribution of six different brands of TV's sold by an electronic store in the year 2017. Read the data carefully and answer the following questions:

Total TV's sold = 7200



Q116. Total TV's of SONY & ONIDA brand sold together is what percent less than total TV's of MI brand sold?
(a) 16%
(b) 18%
(c) 10%
(d) 12%
(e) 14%

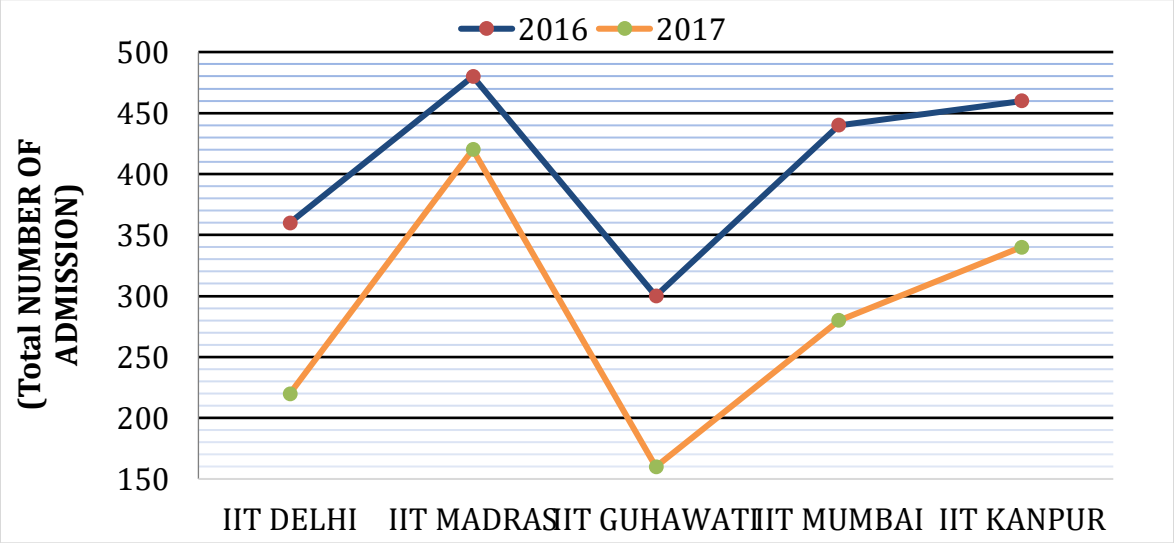
Q117. Find the difference between average number of TV's of ONIDA & TOSIBA brand sold and average numbers of TV's of LG & SONY brand sold?
(a) 140
(b) 120
(c) 100
(d) 160
(e) 180

Q118. If ratio between total LED TV's and LCD TV's sold by SAMSUNG is 5 : 7 and that of by MI is 4 : 5. Then find difference between total LED TV's sold and total LCD TV's sold of both brands by store (both store sold only two types of TV's LED & LCD)?
(a) 488
(b) 512
(c) 428
(d) 568
(e) 620

Q119. Find the ratio between total TV's of LG & ONIDA brands sold together to total TV's of SAMSUNG & SONY brands sold together?
(a) 18 : 13
(b) 13 : 18
(c) 13 : 21
(d) 21 : 13
(e) 13 : 17

Q120. Total number of TV's of LG b brands sold are what percent more than the total number of TV's of TOSIBA brand sold?
(a) $25\frac{1}{13}\%$
(b) $27\frac{1}{13}\%$
(c) $23\frac{1}{13}\%$
(d) $24\frac{1}{13}\%$
(e) $26\frac{1}{13}\%$

Directions (121-125): Given below line graph shows total number of students take admission for B.TECH course in five different IIT's in the 2016 & 2017. Read the graph carefully and answer the questions :



Q121. If $11\frac{1}{9}\%$ of total students take admission in IIT DELHI in the year 2016 and $14\frac{2}{7}\%$ of total students take admission in IIT MADRAS in the year 2017 are belongs to 'SC' category then find total students who did not belongs to 'SC" category from both IIT's in the year 2016 & 2017?
(a) 640
(b) 560
(c) 680
(d) 600
(e) 640

Q122. Out of total students take admission in IIT MADRAS in the year 2016 ratio between girls to boys is 1 : 5, then find total boys take admission in IIT MADRAS in the year 2016 are what percent less than total students take admission in same IIT in the year 2017?

(a) $3\frac{16}{21}\%$

(b) $4\ \frac{16}{21}\%$

(c) $5\frac{16}{21}\%$

(d) $2\frac{16}{21}\%$

(e) $7\frac{16}{21}\%$

Q123. Find the difference between average of number of students take admission in IIT KANPUR in the both years and average of number of students take admission in IIT GUHAWATI in the both years?

(a) 120

(b) 100

(c) 160

(d) 170

(e) 150

Q124. 50% of total students in the year 2016 and 25% of total students in the year 2017 take admission in IIT DELHI belongs to general & OBC category respectively. Then find total students take admission in the year 2016 belonging to general category is what percent more than total students take admission in the year 2017 belonging to OBC category in IIT DELHI?

(a) $223\frac{3}{11}\%$

(b) $225\frac{3}{11}\%$

(c) $209\frac{3}{11}\%$

(d) $219\frac{3}{11}\%$

(e) $227\frac{3}{11}\%$

Q125. Find ratio between total students take admission in IIT MADRAS & IIT GUHAWATI in the year 2016 to total students take admission in IIT DELHI & IIT MUMBAI in the year 2017?

(a) 39 : 25

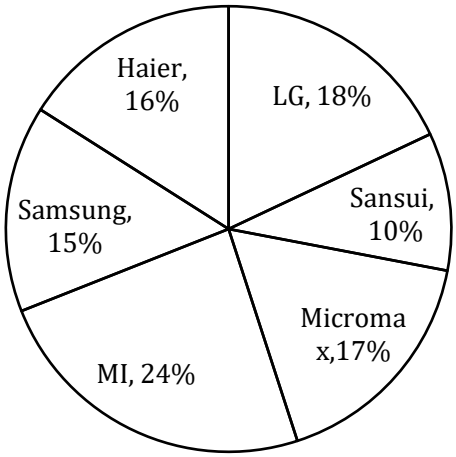
(b) 26 : 57

(c) 59 : 26

(d) 26 : 59

(e) 21 : 26

Directions (126-130): Study the pie chart given below carefully and answer the questions.
Pie-chart given below shows the percentage distribution of total six different brands of TV sold by store 'A'.



Note 1 → Ratio between total no. of TV sold by store A to store B is 4 : 5.
2→ Percentage distribution for both store is same.

Q126. Total number of LG and Sansui TV sold by store B together is what percent of the total number of Sansui and Samsung TV sold by store A together?
(a) 120%
(b) 140%
(c) 150%
(d) 180%
(e) 145%

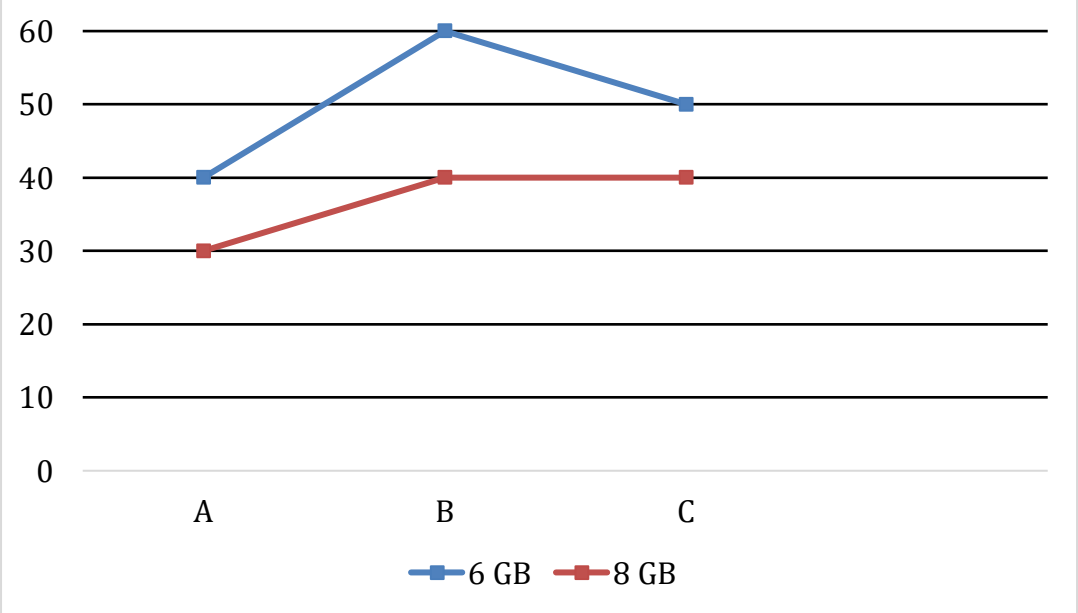
Q127. If total number of Haier TV sold by store B and MI TV sold by store A together is 3520 then find difference between the average of number of LG and Sansui TV sold by store A and total number Samsung TV sold by Store B?
(a) 380
(b) 260
(c) 340
(d) 250
(e) 320

Q128. Find the ratio between total number of Micromax and LG TV sold by store B together to the total number of of Samsung and Sansui TV sold by store A together?
(a) 4 : 3
(b) 5 : 3
(c) 7 : 4
(d) 7 : 5
(e) 3 : 2

Q129. Out of total LG TV sold by store B ratio between 30 inch to 36 inch TV is 2 : 3. If 25% of total 30 inch LG TV sold by store B is 360. Then find total number 36 inch LG TV sold by store B (store B sold only 30 inch & 36 inch TV of LG)
(a) 2400
(b) 3200
(c) 2200
(d) 3600
(e) 2160

Q130. If total Haier TV sold by store A is 320, then find total Micromax TV sold by store B is what percent more than total Sansui TV sold by store A?
(a) 125%
(b) 145%
(c) 130%
(d) 112.5%
(e) 142.5%

Direction (131 – 135): Line graph shows total number (in hundred) of 6GB & 8GB mobile manufactured by three companies and table shows percentage of (6GB + 8GB) mobiles sold by these three companies. Read the data carefully and answer the question.



Companies	% of sold mobiles
A	40%
B	80%
C	60%

Q131. If A & B sold 45% and $66\frac{2}{3}$% of total 6GB mobile phones manufactured by them respectively, then find total 8 GB mobile phones sold by these two companies are what percent of total mobiles manufactured by B?
(a) 50%
(b) 40%
(c) 45%
(d) 60%
(e) 30%

Q132. Average of total unsold mobiles by B & C together is how much more or less than total sold mobiles by C?
(a) 2400
(b) 2800
(c) 2600
(d) 3200
(e) 3600

Q133. If ratio of total 6GB to 8 GB mobiles sold by A & C is 5 : 2 and 5 : 4 respectively, then find total 8 GB mobiles sold by these two companies?
(a) 3600
(b) 3000
(c) 4000
(d) 3200
(e) 4200

Q134. Total unsold mobiles by A is what percent more than that of by B?
(a) 110%
(b) 120%
(c) 130%
(d) 105%
(e) 100%

Q135. Find average number of mobiles sold by all three companies?
(a) 5200
(b) 5800
(c) 4800
(d) 5400
(e) 5600

Directions (136-141): Study the passage and answer the questions given.
Data given below shows the total number of books available in the college library which is 24,000. Ratio of medical (BDS and MBBS) to non-medical books is 7:9. Out of the total medical books (BDS and MBBS), the number of books for MBBS are 10% more than the number of books available for BDS. Non-medical books consist of books for management, engineering, Diploma and BSC courses. 36% of the total non-medical books are for Diploma and BSC courses and out of this, $44\frac{4}{9}$% are for BSC courses. The ratio of the number of books for management to number of books for engineering courses is 21 : 27.

Q136. The number of books available for engineering course is how much more or less than the number of books available for BDS course
(a) 120
(b) 140
(c) 160
(d) 170
(e) 180

Q137. Find the ratio of the total number of books available for MBBS and Diploma courses together to the total number of books available for management and engineering together?
(a) 205 : 216
(b) 216 : 205
(c) 26 : 27
(d) 23 : 24
(e) 209 : 216

Q138. The number of books available for management courses is what percent more or less than the number of books available for MBBS.
(a) $31\frac{1}{11}\%$
(b) 30%
(c) $31\frac{2}{11}\%$
(d) $31\frac{3}{11}\%$
(e) $31\frac{4}{11}\%$

Q139. Total number of management and engineering books together is what percent of the total number of medical books in the library.
(a) $82\frac{2}{7}\%$
(b) $82\frac{4}{7}\%$
(c) $82\frac{3}{7}\%$
(d) $82\frac{1}{7}\%$
(e) $85\frac{5}{7}\%$

Q140. Find the difference between the total number of books for BDS and management courses together and the total number of books for engineering, BSC and Diploma courses together?
(a) 960
(b) 950
(c) 940
(d) 980
(e) 930

Q141. Total number of engineering books are further classified as books for M. Tech courses and books for B. Tech courses which are in ratio 5 : 7 (M. Tech : B. Tech). Number of books for B.Tech is what percent of the number of books for BDS?
(a) 55.7%
(b) 56.7%
(c) 50.6%
(d) 62.6%
(e) 57.6%

Q142. 'A' has a certain average for 9 innings. In the tenth innings he scores 100 runs thereby increasing his average by 8 runs. His new average is
(a) 20
(b) 24
(c) 28
(d) 32
(e) None of these

Q143. Veer, Sameer & Gopal started a business with initial investment in the ratio of 10 : 12 : 9 respectively. At the end of one year Veer, Sameer & Gopal withdrew Rs. 1000, Rs. 1200 and Rs. 1500 respectively from their initial investment. If at the end of two years Sameer got Rs. 16200 as profit share out of total profit of Rs. 40950, then find the initial investment of Gopal?
(a) 4500 Rs.
(b) 4200 Rs.
(c) 3600 Rs.
(d) 3200 Rs.
(e) 4800 Rs.

Q144. The average age of 16 student in a class is x year. If a teacher whose age is 54 years joined the class than average of the class increases by 2 years. Find the value of x?
(a) 18 years
(b)25 year
(c) None of these
(d) 20 years
(e) 30 years

Q145. Ratio of upstream speed to downstream speed is 1 : 11. If speed of boat in still water is 30 km/hr then find the distance covered in upstream in 5 hours ? (in km)
(a) 66
(b) 55
(c) 25
(d) 30
(e) 40

Q146. The speed of boat in still water is 700% more than speed of stream. Boat travels distance of 63 km in downstream in 2 hr 48 min. Then, find the time taken by boat to travel 56 km in upstream.
(a) 2 hr 56 min
(b) 3 hr 02 min
(c) 3 hr 12 min
(d) 3 hr 36 min
(e) 4 hr 12 min

Q147. A boatman can cover a river of 60 km length and came back at its initial point in 4.5 hrs. If speed of boat is thrice than that of the speed of stream then find the speed of boat?
(a) 10
(b) 30
(c) 20
(d) 60
(e) 25

Q148. If the price of milk is increased by 25% then a person can buy 8 litres less milk by spending Rs 160. Find the final rate of milk?
(a) Rs 4 per litre
(b) Rs 5 per litre
(c) Rs 8 per litre
(d) Rs 6 per litre
(e) Rs 7 per litre

Q149. Two trains are travelling with speed 144km/hr and 108 km/hr crosses each other in 6 sec while travelling in opposite direction. The longer train whose length is 60 m more then smaller train and running with speed of 108 km/hr crosses a railway platform in 20 sec. Find the time taken by the smaller train to cross the same platform.
(a) 13.5 sec
(b) 11.5 sec
(c) 12.5 sec
(d) 14.5 sec
(e) 18.5 sec

Q150. Ratio between principle to C.I. for two years is 25 :11. Find the principle if difference between CI & SI for two years is given as Rs 240?
(a) Rs 6000
(b) Rs 5400
(c) Rs 6400
(d) Rs 5000
(e) Rs 4000

Q151. A man borrowed Rs. 10000 from his friend at the rate of 5% p.a. for three years at S.I. Out of total amount he borrowed he invested 80% of amount at the rate of R% p.a. on compound interest for three years and rest he spend. If after three year man still has to pay 852 as interest to his friend, then find 'R'?
(a) 10%
(b) 5%
(c) 8%
(d) 12%
(e) 15%

Q152. A train T_1 running at a speed of 108 km/hr passes a tunnel having length 100% more than that of train T_1 in 18 seconds. Find time taken by train T_1 to cross another train T_2 of same length running in opposite direction at a speed 50% lower than that of T_1?
(a) 20 seconds
(b) 12 seconds
(c) 8 seconds
(d) 16 seconds
(e) 4 seconds

Q153. Speed of Satish is 40% of speed of Aman. Aman covers 2340 m in 18 seconds. Find in how much time Satish can cover 468 m.
(a) 8 seconds
(b) 9 seconds
(c) 10 seconds
(d) 11 seconds
(e) 12 seconds

Q154. If a sum is compounded annually at rate of $11\frac{1}{9}$% for two years and CI for 2nd year is Rs. 70. Then find the sum?
(a) Rs 600
(b) Rs 676
(c) Rs 567
(d) Rs576
(e) Rs 500

Q155. On a day, Sita typed an essay of 6000 words in 40 min. Next day, she typed the same essay with speed 12% faster than the previous day speed. Find the time she took to type the essay on next day ?
(a) $\frac{310}{7}$ min
(b) $\frac{250}{7}$ min
(c) 40 min
(d) 30 min
(e) $\frac{125}{7}$ min

Q156. A manager pays Rs. 120 to a worker for each day he works and Rs. 60 for each day he remains idle and deducts Rs. 20 for each day when he does not come for work. At the end of 210 days, the worker earns Rs. 12,000. Also, the number of days for which he remains absent is 20% of days he remain idle. Find number of days when he does not come for work ?
(a) 30
(b) 20
(c) 25
(d) 15
(e) 50

Q157. If A is 50% more efficient than B and A is 60% less efficient than B and C together. Then find C is how much percent more/less efficient than B ?
(a) 275%
(b) 75%
(c) 175%
(d) 150%
(e) 50%

Q158. The sum of square of two positive numbers is 628 and one number is $45\frac{5}{11}\%$ less than other number. Find the smaller number.
(a) 12
(b) 10
(c) 9
(d) 22
(e) 16

Q159. Priya, Sheetal and Sakshi started a business together and invested amount in the ratio 2 : 8 : 7 and got an overall profit of Rs. 24800 at the end of an year. If Priya invested for 9 months, Sheetal withdrew 4 months before completion of the year and Sakshi invested for 6 months, find Sakshi's share in profit?
(a) Rs. 4200
(b) Rs. 2800
(c) Rs. 8400
(d) Rs. 5100
(e) None of these

Q160. If average of first six numbers is 47.5 and average of last six numbers is 48.5 in a set of 11 numbers. Find the sixth no. if overall average was 47.
(a) 48
(b) 49
(c) 52
(d) 59
(e) 61

Q161. Find the probability of selecting two red honor cards from a pack of 52 cards?
(a) $\frac{132}{663}$
(b) $\frac{28}{663}$
(c) $\frac{14}{663}$
(d) $\frac{61}{663}$
(e) None of these

Q162. Karan invested a sum of money 'P' for two years in scheme A at 20% p.a. CI. The amount received at end of two years from scheme A, reinvested in scheme B for 4 years that offers 25% p.a. S.I. If total interest received from scheme B is Rs 16500 more than P, then find 'P'?
(a) Rs 35500
(b) Rs 27500
(c) Rs 34500
(d) Rs 37500
(e) Rs. 32500

Q163. In a 12 overs match, a team has scored at the run rate of 8.5 in first 10 overs. If team scored, 35 runs in last two overs, find the overall run rate of team in match.
(a) 10
(b) 12
(c) 8.5
(d) 11.5
(e) 9.5

Q164. Find probability of selecting a team of 7 members from a group of 6 girls and 7 boys such that team will have at least 3 girls and at most 4 boys?
(a) $\frac{421}{858}$
(b) $\frac{129}{286}$
(c) $\frac{679}{858}$
(d) $\frac{117}{286}$
(e) $\frac{131}{731}$

Q165. S_1 is a series of five consecutive multiples of 4 whose sum is 100. S_2 is a series of 4 consecutive even integers such that the second smallest number of S_2 is 6 less than largest number of S_1. Find average of series S_2.
(a) 28
(b) 25
(c) 32
(d) 34
(e) 23

Q166. A dishonest cloth merchant sales cloth at the cost price but uses false scale which measures 80 cm in lieu of 1 m. Find his gain percentage?
(a) 20%
(b) 25%
(c) 15%
(d) 12%
(e) 22%

Q167. The area of two squares is in the ratio 225 : 256. Find ratio of their diagonals?
(a) 15 : 16
(b) 3 : 4
(c) $15\sqrt{2}$: 16
(d) 15 : $16\sqrt{2}$
(e) 25 : 26

Q168. 'P' sells his watch at 20% profit to Q while Q sales it to R at a loss of 10%. If R pays Rs. 2160. Find at what price P sold watch to Q?
(a) Rs. 2000
(b) Rs. 2200
(c) Rs. 2400
(d) Rs. 1800
(e) Rs. 2500

Q169. In how many ways can letter of word 'PROMISE' be arranged such that all vowels always come together ?
(a) 720
(b) 120
(c) 960
(d) 880
(e) 480

Q170. Cost price of two articles A & B in the ratio of 8 : 9 and shopkeeper marked article A & B 25% and 12.5% above cost price respectively. If shopkeeper allows discount of 15% on A and 10% of B, then he get a total profit of Rs. 110.25. Find the total cost price of article A & B?
(a) 3080 Rs.
(b) 3060 Rs.
(c) 3260 Rs.
(d) 3460 Rs.
(e) 3260 Rs.

Q171. Rahul markup an article 40% above the cost price and gives a discount of 25%. If same article he marks up 60% above its cost price & 25% discount, then difference between profit earned in former case than in latter case is what percent of new selling price of article when markup percent is 60%.
(a) 30%
(b) 22.5%
(c) 17.5%
(d) 25%
(e) 12.5%

Q172. Three coins are tossed simultaneously. Find the probability of getting at least one head & one tail.
(a) $\frac{3}{4}$
(b) $\frac{1}{4}$
(c) $\frac{2}{5}$
(d) $\frac{1}{3}$
(e) $\frac{1}{2}$

Q173. The ratio of the length and the breadth of a rectangular plot is 6 : 5 and the ratio of numerical value of perimeter and the area of this plot is 2 : 15. Find the perimeter of a square whose numerical value of its area is equal to numerical value of the perimeter of the rectangle?
(a) 40 cm
(b) 36 cm
(c) 44 cm
(d) 48 cm
(e) 52 cm

Q174. A sphere and a cube have equal surface areas. Find the ratio of radius of sphere to side of cube.
(a) $\sqrt{21} : 2\ \sqrt{11}$
(b) 21 : 44
(c) 14 : 42
(d) 17 : 46
(e) None of these

Q175. Height of a right circular cylinder whose volume is $500\pi\ cm^3$ of radius 10 cm, is equal to the diagonal of a square. Then find the perimeter of square ?
(a) $10\sqrt{2}$ cm
(b) $5\sqrt{2}$ cm
(c) $20\sqrt{3}$ cm
(d) $20\sqrt{2}$ cm
(e) None of these

Q176. In a bag there are X red balls, 5 green balls and 8 blue balls and probability of choosing one blue ball is ⅓. Then find the value of X ?
(a) 11
(b) None of these
(c) 8
(d) 13
(e) 9

Q177. A man has 5 identical chocolate and 5 different size boxes. If he ties a ribbon of different color on each chocolate, then find the probability of putting a particular colored ribbon on a chocolate put in a particular box.

(a) $\frac{1}{625}$

(b) $\frac{1}{5}$

(c) $\frac{2}{25}$

(d) $\frac{1}{25}$

(e) $\frac{1}{125}$

Q178. The ratio of length to breadth of a rectangle is 7 : 4 and ratio between breadth of rectangle to side of a square is 4 : 5. If perimeter of rectangle is 8 m more than perimeter of square, then find area of rectangle?

(a) 428 m^2

(b) 448 m^2

(c) 416 m^2

(d) 424 m^2

(e) 414 m^2

Q179. A bottle contains three-fourths of milk and the rest water. How much of the mixture must be taken away and replaced by an equal quantity of water so that the mixture has half milk and half water ?

(a) 25%

(b) 33.33%

(c) 45%

(d) 50%

(e) 66.67%

Q180. A chemist has 10 litre of a solution that is 10% nitric acid by volume. He wants to dilute the solution to 4% strength by adding water how many litre of water must be added?

(a) 15

(b) 20

(c) 18

(d) 25

(e) 17

Q181. A mixture of milk and water contains 60% milk and remaining water. How much water should be added (in percentage) in mixture to reverse the proportion of milk and water?

(a) 25%

(b) 37.5%

(c) 62.5%

(d) 75%

(e) 50%

Q182. A mixture of 25 ℓ contains milk and water in the ratio 3 : 2. 'x' ℓ of water is added in mixture to make the ratio of milk and water as 1 : 1. After that 'y' ℓ of milk is added to make the proportion of milk and water same as in initial condition. Find 'y' is what percent more than 'x' ?
(a) 12.5%
(b) 25%
(c) 37.5%
(d) 50%
(e) 62.5%

Q183. Pipe A can fill a tank in 45 hr, pipe B is 50% more efficient than A and pipe C can fill the same tank in 7.5 hr less than B. A and B opened together after X hr both pipe closed and pipe C filled remaining tank in (X + 9) hr, if the ratio between tank filled by (A + B) together to tank filled by pipe C is 1 : 2. Find the value of X ?
(a) 2 hr
(b) 4 hr
(c) 12 hr
(d) 6 hr
(e) 8 hr

Q184. 4 boys and 8 girls completed $\frac{1}{3}$ rd of work in 5 days. After that 3 boys & 3 girls increased, and they completed $\frac{1}{3}$ rd more work in 3 days. If remaining work is completed in 2 days, then find how many more girls should be increased?
(a) 30 girls
(b) 90 girls
(c) None of these
(d) 40 girls
(e) 50 girls

Q185. The ratio of time taken by A and C to do a work is 1 : 2 respectively. B is 166⅔% more efficient than C. Time taken by A to complete 6% of work is 6 days. Find the time taken by B and C together to complete the whole work.
(a) $60\frac{1}{11}$ days
(b) $50\frac{1}{13}$ days
(c) $54\frac{6}{11}$ days
(d) $53\frac{8}{11}$ days
(e) None of these

Q186. A man buys 2 balls and their cost price is in the ratio of 5: 6. If he sells them on 10% profit each, he earned total profit of Rs. 22. What will be his total profit, if he sell first ball on 20% loss and second at 30% profit.
(a) Rs. 22
(b) Rs. 16
(c) Rs. 13
(d) Rs. 14
(e) Rs. 24

Q187. Anurag , Sandeep & Ankit are three friends, while Anurag is 4 years younger than Sandeep. If ratio between ages of Sandeep & Ankit four years ago was 2 : 3 and eigth years hence will be 3 : 4, then find ratio between age of Anurag and Ankit four years hence will be?
(a) 7 : 10
(b) 7 : 9
(c) 7 : 8
(d) 7 : 11
(e) 7: 12

Q188. The average of present age of X, Y and Z is 21 years. The ratio of their ages 7 years later is 3 : 5 : 6. Find average of present age X and Y ?
(a) None of these
(b) 12 years
(c) 21 years
(d) 16 years
(e) 17 years

Q189. Average age of A , B & C four years hence is 24 years and the ratio between age of B & C is 6 : 5. If age of A is 4 years less than that of C, then find average age of A & B two years hence will be?
(a) 17 years
(b) 19 years
(c) 21 years
(d) 20 years
(e) 22 years

Q190. A's income is $16\frac{2}{3}\%$ less than that of C's while B's income is Rs 400 more than that of A. If average of A's and C's income is Rs 175 less than that of B's income. Then find income of A?
(a) Rs. 2250
(c) Rs. 2075
(d) Rs. 2125
(e) Rs. 2400
(e) Rs. 2550

Directions (191–195): In the following questions two quantities are given for each question. Compare the numeric value of both the quantities and answers accordingly.
(a) Quantity I > Quantity II
(b) Quantity II > Quantity I
(c) Quantity I ≥ Quantity II
(d) Quantity II ≥ Quantity I
(e) Quantity I = Quantity II or relation can't be established.

Q191. Quantity I: How many litres of water will flow through a pipe of cross-section area 10 cm^2 in $1\frac{1}{2}$ min if the rate of flow of water through the pipe is 20 cm/sec.
Quantity II: A mixture of milk and water has 60% milk. Another mixture has 25% water. What quantity of 60% milk content is mixed with 9 liters of 25% milk content to prepare a new mixture of 65% milk content?

Q192. Quantity I : The ratio of age of Heena 7 years ago to that of Meena 12 years ago was 5 : 6. And the ratio of age of Meena and Heena 8 years hence will be 5 : 4. Then find the average of their present age.
Quantity II: The average age of 6 students in a school is 24.5 years. When a new student joined them, the average is increased by 1.5 years. Again, when another new student is included the average is further increased by 2.5 years. Find the average of the age of two new students.

Q193. Quantity I: Gopal saves 12% of his income. If his income is increased by 20% and expenditure increases by $\frac{1}{8}^{th}$ of the original expenditure. Then find the increment/decrement in his savings is what percent of his initial income.
Quantity II: The compound interest received on Rs. 40,000 in 2 years is Rs. 7961. Then find the rate of interest (per annum).

Q194. Quantity I: In a bag, there are 6 green and 4 red marbels, three marbels are taken one after the other. Find the probability of all three marbels being red if marbels taken are not replaced ?
Quantity II: An integer is choosen at random from the first 300 integers. What is the probability that this number will be divisible by 28.

Q195. Quantity I: Bhavya alone can do ⅔rd of a work in 12 days while Sambhu alone can do $\frac{3}{4}^{th}$ of the work in 18 days. Find the time taken by both to finish the same job.
QuantityII: 12 men can complete a work in 11 days. 5 days after they had started working, 4 more men joined them. Find the total time in which work will complete.

Directions (196-198): The following questions are accompanied by two statements (I) and (II). You have to determine which statements(s) is/are sufficient/necessary to answer the questions.
(a) Statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the questions.
(b) Statement II alone is sufficient to answer the question but statement I alone is not sufficient to answer the question.
(c) Both the statements taken together are necessary to answer the questions, but neither of the statements alone is sufficient to answer the question.
(d) Either statement I or statement II by itself is sufficient to answer the question.
(e) Statements I and II taken together are not sufficient to answer the question.

Q196. Find the age of Chauhan if minimum age difference between the age of any two persons (out of Abhi, Billi & Chauhan) is 2 years.
(i) Ratio of age of Chauhan to Billi is 3 : 2.
(ii) Ratio of age of Abhi 6 years ago to age of Billi 2 years hence is 1 : 2.

Q197. Calculate the rate of interest
(i) An amount of Rs. 864 is obtained at the principal of Rs. 800 at SI.
(ii) An amount of Rs. 176 is obtained after 19 years when Rs. 100 is submitted at SI.

Q198. What is the area of equilateral ΔABC.
(i) The height of triangle is $3\sqrt{3}$ cm.
(ii) Ratio of area of triangle ABC to area of similar triangle PQR is 9 : 4.

Directions (199-200): The following questions are accompanied by two statements A and B. You have to determine which statements(s) is/are sufficient/necessary to answer the questions.
(a) Both the statements taken together are necessary to answer the questions, but neither of the statements alone is sufficient to answer the question.
(b) Statement B alone is sufficient to answer the question, but statement A alone is not sufficient to answer the question.
(c) Either statement A or statement B by itself is sufficient to answer the question.
(d) Statement A alone is sufficient to answer the question, but statement B alone is not sufficient to answer the questions.
(e) Statements A and B taken together are not sufficient to answer the question.

Q199. Find Veer's present age if Atul is ten year younger than Veer.
(A) Five year hence, Atul's age is 20% more than Abhi's age while Abhi is 15 years younger than Veer.
(B) Ratio between Veer's present age to Atul present age is 7 : 5

Q200. Find the speed of boat in downstream?
(A) Speed of boat in still water is 50% more than speed of boat in upstream.
(B) Difference between time taken by boat to cover 32 km in upstream to that of in downstream is 2 hours.

Solutions

S1. Ans.(b)
Sol.
? = 685 + 395 – 865 = 215

S2. Ans.(e)
Sol.
$?\times\frac{700}{100}=601-38\times\frac{550}{100}$
$\Rightarrow$?=56

S3. Ans.(c)
Sol.
$?=16^2\times\frac{28^2}{8^4}=49$

S4. Ans.(a)
Sol.
$?=\frac{1575}{195}\times\frac{16}{9}\times\frac{13}{7}=\frac{80}{3}$

S5. Ans.(b)
Sol. $\frac{7}{2\times100}\times?=\sqrt{1764}$
$\Rightarrow$? =1200

S6. Ans.(b)
Sol.
$\frac{7}{2}\times\frac{22}{7}+\frac{23}{4}\times\frac{3}{46}=?$
$?=11+\frac{3}{8}=11\frac{3}{8}$

S7. Ans.(c)
Sol.
$\frac{1280}{8}+\frac{1220}{4}-182=?$
? = 160 + 305 – 182
? = 283

S8. Ans.(b)
Sol.
$\sqrt{123\times8+2389-1164}=?$
$?=\sqrt{984+2389-1164}$
$?=\sqrt{2209}$

? = 47

S9. Ans.(c)

Sol.

$(13 + 2\sqrt{5})^2 = ? \times \sqrt{5} + 189$

$\Rightarrow 169 + 20 + 2 \times 13 \times 2\sqrt{5} = ? \times \sqrt{5} + 189$

$\Rightarrow 189 + 52 \times \sqrt{5} = ? \times \sqrt{5} + 189$

$\Rightarrow ? = 52$

S10. Ans.(b)

Sol.

$8\sqrt{?} \div 14 \times 3 + 9 = 21$

$\frac{8\sqrt{?}}{14} \times 3 + 9 = 21$

$\frac{24\sqrt{?}}{14} + 9 = 21$

$24\sqrt{?} = 21 \times 14 - 9 \times 14$

$\sqrt{?} = \frac{12 \times 14}{24} = 7$

$\Rightarrow ? = 49$

S11. Ans.(b)

Sol.

$7\frac{4}{3} + 3\frac{1}{2} + 5\frac{2}{3} = ? + 4\frac{3}{5} - 7\frac{1}{2} + 11\frac{2}{5}$

$? = (7 + 3 + 5) + \frac{4}{3} + \frac{1}{2} + \frac{2}{3} - 4 + 7 - 11 - \frac{3}{5} - \frac{2}{5} + \frac{1}{2}$

?= 9

S12. Ans.(d)

Sol.

$? = \frac{473}{903} \times 63^2 - 27 \times 52$

$= \frac{11}{21} \times 63 \times 63 - 27 \times 52$

$= 27 \times 77 - 27 \times 52$

$= 27 \times (77 - 52) = 27 \times 25 = 675$

S13. Ans.(c)

Sol. $? = \frac{34}{9} \times \frac{27}{17} + 5 = 6 + 5 = 11$

S14. Ans.(d)

Sol. $? = \frac{3}{5}\ of\ \frac{5}{9}\ of\ \frac{2}{7}\ of\ 9450$

$= \frac{3}{5} \times \frac{5}{9} \times \frac{2}{7} \times 9450 = 900$

S15. Ans.(c)

Sol. $\frac{66}{100}\ of\ 350 + ? = \frac{5}{8}\ of\ 1256$

$\Rightarrow 231 + ? = 785$

$\therefore ? = 785 - 231 = 554$

S16. Ans.(c)

Sol.

$3.5 \times 18 - (?)^2 = 36 + 2$

$63 - 38 = (?)^2$

$25 = (?)^2$

$? = 5$

S17. Ans.(b)

Sol.

$? = \frac{2975}{1190}$

$? = 2.5$

S18. Ans.(b)

Sol.

$\frac{25 \div 4 \times 6}{3} = ?$

$? = 12.5$

S19. Ans.(c)

Sol.

$(390 + 310 - 225)\ 4 = ?$

$(700 - 225)\ 4 = ?$

$475 \times 4 = ?$

$? = 1900$

S20. Ans.(e)

Sol.

$9 \times 25 + 1225 + 150 = (?)^2$

$225 + 1225 + 150 = (?)^2$

$? = \sqrt{1600}$

$? = 40$

S21. Ans.(c)

Sol.

$4900 \times \frac{1}{28} \times 444 \times \frac{1}{12} - 6450 = (?)^2$

$\Rightarrow 6475 - 6450 = (?)^2$

$\Rightarrow \sqrt{25} = ?$

$\Rightarrow ? = 5$

S22. Ans.(a)

Sol.

$\frac{38}{100} \times 250 - \frac{85}{100} \times 560 + 13 \times ? = 61$

$\Rightarrow 95 - 476 + 13 \times ? = 61$

$\Rightarrow 13 \times ? = 61 + 381$

$\Rightarrow ? = 34$

S23. Ans.(e)

Sol.

$\frac{19}{9} \times \frac{21}{19} \times \frac{3}{7} - \frac{1}{2} = ? - \frac{3}{2}$

$1 - \frac{1}{2} = ? - \frac{3}{2}$

$? = 2$

S24. Ans.(b)

Sol.

$12\sqrt{?} - \frac{26}{100} \times 1650 + 19 = 13 \times 34$

$12\sqrt{?} - 429 + 19 = 442$

$12\sqrt{?} = 871 - 19$

$\sqrt{?} = \frac{852}{12} = 71$

$? = 5041$

S25. Ans.(d)

Sol.

$\frac{535}{1000} \times 720 \times \left[\frac{26}{28} \times \frac{63}{39} \times \frac{5}{9}\right] = ?$

$? = 321$

S26. Ans.(a)

Sol.

$575 \times \frac{24}{8} - 125 = (?)^2$

$1725 - 125 = (?)^2$

$1600 = (?)^2$

$? = 40$

S27. Ans.(e)

Sol.

$125 \times 4 \times 5 - \frac{?}{4} = 2000$

$2500 - 2000 = \frac{?}{4}$

$? = 500 \times 4$

$? = 2000$

S28. Ans.(b)

Sol.

$\frac{(?)}{25} \times 4 - 96 + 5 = 25$

$? = \frac{116 \times 25}{4}$

$? = 29 \times 25$

$? = 725$

S29. Ans.(a)

Sol.

$1080 - 180 + 124 = (?)^2$

$1024 = (?)^2$

$? = 32$

S30. Ans.(d)

Sol.

$150 + ? - 76 = 324$

$? = 324 + 76 - 150$

$? = 250$

S31. Ans.(b)

Sol.

$\frac{8400 \times 15}{375} + \sqrt{16} \approx ?$

$\frac{84 \times 100}{25} + 4 \approx ?$

$336 + 4 \approx ?$

$340 \approx ?$

S32. Ans.(c)

Sol.

$\sqrt{2500} + \frac{15}{100} \times 14 \approx ?$

$50 + 2.1 \approx ?$

$52 \approx ?$

S33. Ans.(c)
Sol.
$? \approx 25\% \times 640 + 45\%$ of 360
$? \approx 160 + 162 \approx 322$

S34. Ans.(d)
Sol.
33.33% of $510 \approx ?$
$\frac{510}{3} \approx ?$
$? \approx 170$

S35. Ans.(b)
Sol.
75% of $1344 + 12.5\%$ of $128 \approx ?$
$\frac{3}{4} \times 1344 + \frac{1}{8} \times 128 \approx ?$
$1008 + 16 \approx ?$
$1024 \approx ?$

S36. Ans.(c)
Sol.
$\frac{?}{11} = \sqrt[3]{8} \times (3)^2 - \sqrt{81}$
$? = (2 \times 9 - 9) \times 11$
$? = 99$

S37. Ans.(a)
Sol.
$?^2 = 2080 - 1698 - 213$
$? = 13$

S38. Ans.(e)
Sol.
$\Rightarrow \frac{1}{?} \times (2 \times 6^2 - 8^2) = 2^2$
$? = \frac{(72-64)}{4} = 2$

S39. Ans.(b)
Sol.
$? = \frac{16}{100} \times 1300 + \frac{32}{100} \times 1500$
$? = 208 + 480$
$? = 688$

S40. Ans.(d)
Sol.
$? = (13)^2 - (16)^2 + (7)^2$
$= 169 - 256 + 49$
$= -38$

S41. Ans.(e)
Sol.
$\approx \frac{21}{100} \times 1300 + 5x = \frac{52}{100} \times 4400$
$273 + 5x = 2288$
$5x = 2288 - 273$
$x = \frac{2015}{5}$
$x = 403$

S42. Ans.(a)
Sol.
$\approx 3 \times 5 + \frac{55}{5} + x = 78 \times 2$
$\approx 15 + 11 + x = 156$
$\approx x = 130$

S43. Ans.(a)
Sol.
$\approx \frac{4x+30}{25} + 230 = 320$
$\approx \frac{4x+30}{25} + 230 = 320$
$\approx \frac{4x+30}{25} = 90$
$\approx 4x + 30 = 90 \times 25$
$4x = 2250 - 30$
$4x = 2220$
$x = 555$

S44. Ans.(e)
Sol.
$16\sqrt{?} + 69\sqrt{?} - 10\sqrt{?} \approx \frac{75}{34} \times (?)$
$75\sqrt{?} = \frac{75}{34} \times (?)$
$\Rightarrow \sqrt{?} = \frac{?}{34}$
$\Rightarrow \sqrt{?} = 34$

$\Rightarrow ? = (34)^2$
$\Rightarrow ? = 1156$

S45. Ans.(b)
Sol.
56.08% of $149.92 + \sqrt{28.02 \times 6.98} - 11\frac{1}{9}\%\ 998.9 = ?$
56% of $150 + \sqrt{28 \times 7} - \frac{1}{9} \times 999 \approx ?$
84 + 14 – 111 = -13

S46. Ans.(b)
Sol.
$\sqrt{64 \times 36} + \frac{420}{6} - 540 = ? - 800$
$? = \sqrt{2304} + 70 - 540 + 800$
$? = 378$

S47. Ans.(a)
Sol.
$\frac{16}{100} \times 1600 + \frac{?}{100} \times 1200 = 20 \times 122$
$256 + ? \times 12 = 2440$
$? = \frac{2184}{12} = 182$

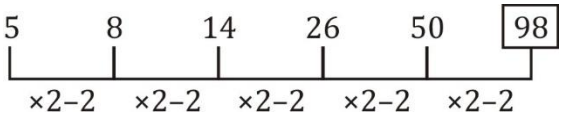
S48. Ans.(d)
Sol.
$(8)^3 + (15)^2 - (12)^2 = ? - 1220 - 1750$
$512 + 225 - 144 = ? - 2970$
$? = 3563$

S49. Ans.(e)
Sol.
$20 \times \sqrt{?} = \frac{64}{100} \times 400 + \frac{12}{100} \times 1200$
$20 \times \sqrt{?} = 256 + 144$
$\sqrt{?} = \frac{400}{20} = 20$
$? = 400$

S50. Ans.(c)
Sol.
$(?)^2 + \frac{14}{100} \times 1600 = 59 \times 12$
$(?)^2 + 224 = 708$
$(?)^2 = 484$
$? = 22$

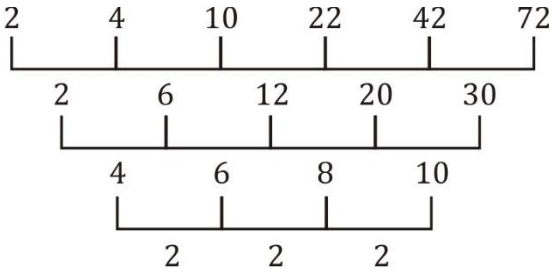
S51. Ans.(d)

Sol.

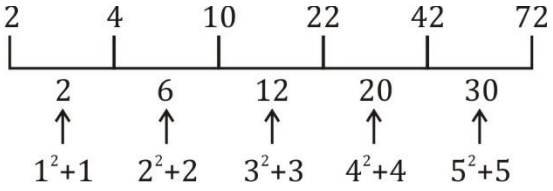


S52. Ans.(d)

Sol.

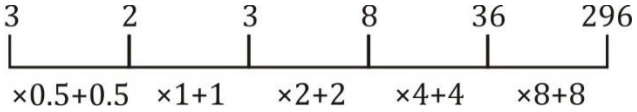


Alternate,



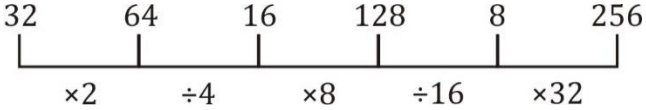
S53. Ans.(d)

Sol.



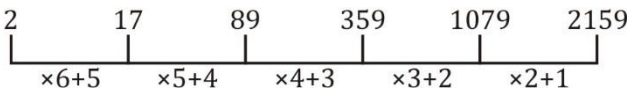
S54. Ans.(c)

Sol.



S55. Ans.(a)

Sol.



S56. Ans.(c)
Sol.
Pattern of series
12 × 0.5 + 1 = 7
7 × 1 + 1.5 = 8.5
8.5 × 1.5 + 2 = 14.75
? = 14.75 × 2 + 2.5 = 32
32 × 2.5 + 3 = 83

S57. Ans.(a)
Sol.
Pattern of series —
12 × 6 + 6 = 78
78 × 5 + 5 = 395
395 × 4 + 4 = 1584
1584 × 3 + 3 = 4755
? = 4755 × 2 + 2 = 9512

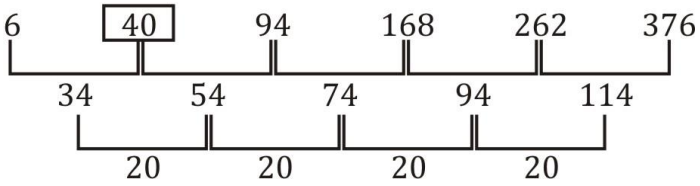
S58. Ans.(e)
Sol.
26 × 2 + 1 = 53
53 × 4 + 2 = 214
214 × 6 + 3 = 1287
1287 × 8 + 4 = 10300
? = 10300 × 10 + 5 = 103005

S59. Ans.(d)
Sol.
Pattern of series —
$4187 - (11^3 - 1) = 2857$
$2857 - (9^3 - 1) = 2129$
$2129 - (7^3 - 1) = 1787$
$1787 - (5^3 - 1) = 1663$
$? = 1663 - (3^3 - 1) = 1637$

S60. Ans.(e)
Sol.
Pattern of series
27 ÷ 1 = 27
27 × 2 = 54
54 ÷ 3 = 18
18 × 4 = 72
? = 72 ÷ 5 = 14.4

S61. Ans.(b)

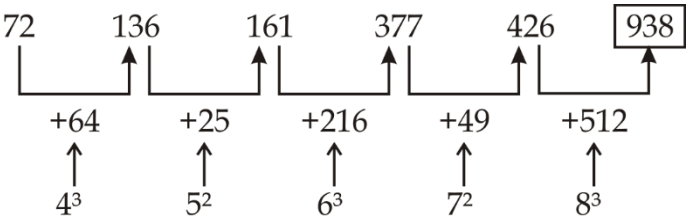
Sol.



S62. Ans.(a)

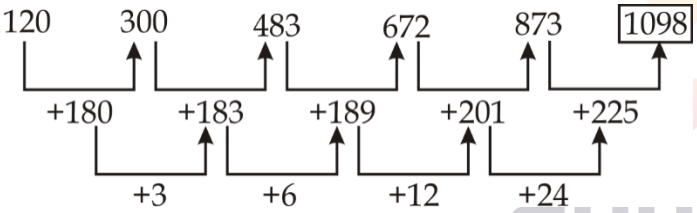
Sol.

Pattern is,



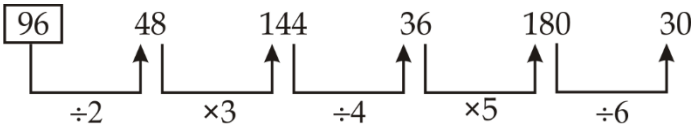
S63. Ans.(d)

Sol. Pattern is,



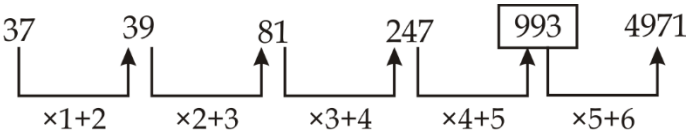
S64. Ans.(d)

Sol. Pattern is,



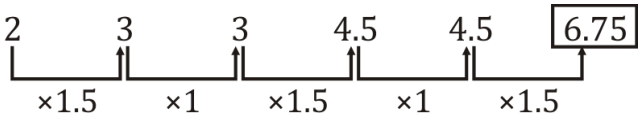
S65. Ans.(e)

Sol. Pattern is,



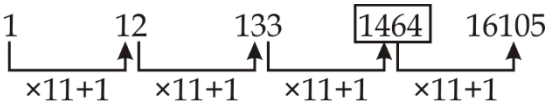
S66. Ans.(d)

Sol.



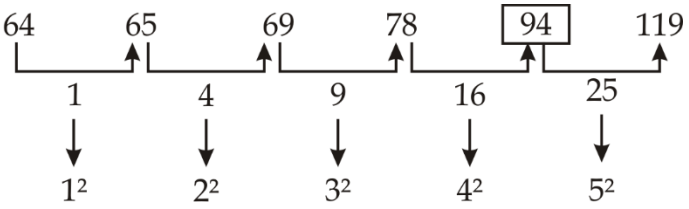
S67. Ans.(c)

Sol.



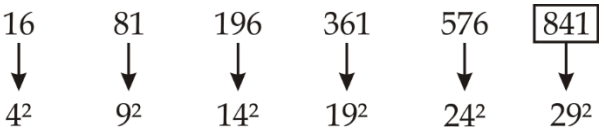
S68. Ans.(b)

Sol.



S69. Ans.(e)

Sol.



S70. Ans.(a)

Sol.

S71. Ans.(a)

Sol. I. $2x^2-17x+36=0$

$2x^2-8x-9x+36=0$

$2x(x-4)-9(x-4) = 0$

$(2x-9)\ (x-4) = 0$

$x = \frac{9}{2}, 4$

II. $3y^2-19y+30=0$

$3y^2-9y-10y+30=0$

$3y(y-3)-10(y-3) =0$

$(3y-10)\ (y-3)=0$

$y = \frac{10}{3}, 3$

$x > y$

S72. Ans.(c)

Sol. I. $4x^2-35x+75=0$

$4x^2-20x-15x+75=0$

$4x(x-5)-15(x-5)=0$
$(4x-15)(x-5)=0$
$x=\frac{15}{4}, 5$
II. $6y^2-47y+90=0$
$6y^2-27y-20y+90=0$
$3y(2y-9)-10(2y-9)=0$
$(3y-10)(2y-9)=0$
$y=\frac{10}{3}, \frac{9}{2}$
No relation can be established between x & y

S73. Ans.(d)
Sol. I. $x^2+15x+50=0$
$x^2+10x+5x+50=0$
$x(x+10)+5(x+10)=0$
$(x+5)(x+10)=0$
$x=-5, -10$
II. $y^2-5y-50=0$
$y^2-10y+5y-50=0$
$y(y-10)+5(y-10)=0$
$(y+5)(y-10)=0$
$y=-5, 10$
$y \geq x$

S74. Ans.(b)
Sol. I. $\sqrt{(10+x)(10-x)}=8$
$100-x^2=64$
$x^2=36$
$x=\pm 6$
II. $y=\sqrt{64}$
$y=8$
$y>x$

S75. Ans.(e)
Sol. $x^2-6x-40=0$
$x^2-10x+4x-40=0$
$x(x-10)+4(x-10)=0$
$(x+4)(x-10)=0$
$x=-4, 10$
II. $y^2+10y+24=0$
$y^2+6y+4y+24=0$
$y(y+6)+4(y+6)=0$

(y+4) (y+6) =0
y=–4, –6
x≥y

S76. Ans.(e)
Sol.
(i) $8x^2 + 18x - 11 = 0$
$8x^2 + 22x - 4x - 11 = 0$
$2x (4x + 11) - 1 (4x + 11) = 0$
$(4x + 11) (2x - 1) = 0$
$x = -\frac{11}{4}, \frac{1}{2}$
(ii) $4y^2 + 17y + 15 = 0$
$4y^2 + 12y + 5y + 15 = 0$
$4y (y + 3) + 5 (y + 3) = 0$
$(y + 3) (4y + 5) = 0$
$y = -3, -\frac{5}{4}$
No relation

S77. Ans.(d)
Sol.
(i)$3x^2 - 32x + 64 = 0$
$3x^2 - 24x - 8x + 64 = 0$
$3x (x - 8) - 8 (x - 8) = 0$
$(x - 8) (3x - 8) = 0$
$x = 8, \frac{8}{3}$
(ii)$y^2 - 17y + 72 = 0$
$y^2 - 8y - 9y + 72 = 0$
$y (y - 8) - 9 (y - 8) = 0$
$(y - 8) (y - 9) = 0$
$y = 8, 9$
$x \leq y$

S78. Ans.(b)
Sol.
(i)$2x^2 + 8x - 24 = 0$
$2x^2 + 12x - 4x - 24 = 0$
$2x (x + 6) - 4(x + 6) = 0$
$(2x - 4) (x + 6) = 0$
$x = 2, - 6$
(ii) $y^2 + 13y + 42 = 0$
$y^2 + 7y + 6y + 42 = 0$

$y(y+7)+6(y+7)=0$
$(y+7)(y+6)=0$
$y=-6,-7$
$x \geq y$

S79. Ans.(e)
Sol.
(i) $2x^2-15x+22=0$
$2x^2-11x-4x+22=0$
$x(2x-11)-2(2x-11)=0$
$(x-2)(2x-11)=0$
$x=2, 5.5$
(ii) $3y^2-21y+18=0$
$3y^2-18y-3y+18=0$
$3y(y-6)-3(y-6)=0$
$(3y-3)(y-6)=0$
$y=1, 6$
No relation

S80. Ans.(d)
Sol.
(i) $x^2-30x+144=0$
$x^2-24x-6x+144=0$
$x(x-24)-6(x-24)=0$
$(x-24)(x-6)=0$
$x=24, 6$
(ii) $y^2-50y+624=0$
$y^2-24y-26y+624=0$
$y(y-24)-26(y-24)=0$
$(y-24)(y-26)=0$
$y=24, 26$
$x \leq y$

S81. Ans.(b)
Sol.
Pattern followed is
$100+(14\times3)=142$
$142+(14\times5)=212$
$212+(14\times7)=310$
$310+(14\times9)=436$
$436+(14\times11)=590$
$590+(14\times13)=772$
So, wrong number is 595 which should be replaced by 590

S82. Ans.(d)
Sol.
Pattern followed is
$72 + (2)^3 = 80$
$80 + (4)^3 = 144$
$144 + (6)^3 = 360$
$360 + (8)^3 = 872$
$872 + (10)^3 = 1872$
$1872 + (12)^3 = 3600$
So, wrong number is 864 which should be replaced by 872
S83. Ans.(c)
Sol.
Pattern followed is
$12 \times 1 + 2 = 14$
$14 \times 2 + 3 = 31$
$31 \times 3 + 4 = 97$
$97 \times 4 + 5 = 393$
$393 \times 5 + 6 = 1971$
$1971 \times 6 + 7 = 11833$
So, wrong number is 96 which should be replaced by 97

S84. Ans.(e)
Sol.
Pattern followed is
$(12)^2 - 12 = 132$
$(13)^2 - 13 = 156$
$(14)^2 - 14 = 182$
$(15)^2 - 15 = 210$
$(16)^2 - 16 = 240$
$(17)^2 - 17 = 272$
$(18)^2 - 18 = 306$
So, wrong number is 310 which should be replaced by 306

S85. Ans.(b)
Sol.
Pattern followed is
$16000 \div 2 = 8000$
$8000 \times 3 = 24000$
$24000 \div 4 = 6000$
$6000 \times 5 = 30000$
$30000 \div 6 = 5000$
$5000 \times 7 = 35000$

So, wrong number is 7500 which should be replaced by 5000

S86. Ans.(d)
Sol.
$10^2 + 2 = 102$
$9^2 + 2 = 83$
$8^2 + 2 = 66$
$7^2 + 2 = 51$
$6^2 + 2 = 38$
$5^2 + 2 = 27$
$4^2 + 2 = 18$
Hence, wrong term is 50.

S87. Ans.(c)
Sol.
$1^2 + 1^3 = 2$
$2^2 + 2^3 = 12$
$3^2 + 3^3 = 36$
$4^2 + 4^3 = 80$
$5^2 + 5^3 = 150$
$6^2 + 6^3 = 252$
$7^2 + 7^3 = 392$
So, wrong number is 251

S88. Ans.(c)
Sol.
All numbers in the series are prime except 15.
So, wrong term is 15.

S89. Ans.(a)
Sol.
11 + 11 = 22
22 + 12 = 34
34 + 13 = 47
47 + 14 = 61
61 + 15 = 76
76 + 16 = 92
So, wrong term is 77

S90. Ans.(a)
Sol.
$2 \times 2 + 1 = 5$
$5 \times 2 + 1 = 11$
$11 \times 2 + 1 = 23$

$23 \times 2 + 1 = 47$
$47 \times 2 + 1 = 95$
$95 \times 2 + 1 = 191$
So, wrong term is 6.

S91. Ans(b)
Sol.
Total employees preferred metro from company S & T
$= 91 \times \frac{70}{14} + 110 \times \frac{72.5}{12.5}$
$= 455 + 638$
$= 1093$
Total employees preferred bus from company T, P & S
$= 110 \times \frac{15}{12.5} + 92 \times \frac{24}{8} + 91 \times \frac{16}{14}$
$= 132 + 276 + 104$
$= 512$
Required difference $= 1093 - 512 = 581$

S92. Ans.(d)
Sol.
Total employee in P $= 92 \times \frac{100}{8} = 1150$
Total employee in S $= 91 \times \frac{100}{14} = 650$
Total employee in P & S $= 1150 + 650 = 1800$
Required average $= \frac{1800}{2} = 900$

S93. Ans.(a)
Sol.
Total number of employee prefer metro from company 'A'
$= 39 \times \frac{60}{5} \times \frac{125}{100}$
$= 585$
Total employee in company 'A' $= 585 \times \frac{100}{45} = 1300$
Total employee in company 'T' $= 110 \times \frac{100}{12.5} = 880$
Required percentage $= \frac{1300-880}{1300} \times 100$
$= 32\frac{4}{13}\%$

S94. Ans.(b)
Sol.
Total employee prefer bus from company R $= 192 \times \frac{30}{15} = 384$
Total employee prefer bus from company S $= 91 \times \frac{16}{14} = 104$

Required ratio = $\frac{384}{104}$

= 48 : 13

S95. Ans.(a)

Sol.

Total employees preferred metro from company P = $92 \times \frac{68}{8} = 782$

Total employees preferred metro from company Q = $39 \times \frac{60}{5} = 468$

Total employees preferred metro from company R = $192 \times \frac{55}{15} = 704$

Required sum = 782 + 468 + 704 = 1954

S96. Ans.(b)

Sol. Pen, Pencil and Sharpener sold by Satish = 60 + 75 + 60 = 195

Sharpener sold by all three sellers together = 60 + 40 + 50 = 150

Required % = $\frac{195}{150} \times 100 = 130\%$

S97. Ans.(c)

Sol. Required Ratio = $\frac{35+45+55}{70+50+45} = \frac{135}{165} = \frac{9}{11}$

S98. Ans.(e)

Sol. Average number of article sold is Ayush = $\frac{80+70+45+50+50}{5} = \frac{295}{5} = 59$

Average number of article sold by Satish = $\frac{60+75+35+60+45}{5} = \frac{275}{5} = 55$

Required difference = 59–55=4

S99. Ans.(b)

Sol. Total number of rubber sold by Lalit = 55

Let type A rubber sold by Lalit = 100x

⇒ Type B rubber sold by Lalit = 120x

ATQ

100x+120x=55

⇒ x=$\frac{55}{220}$

⇒ x=0.25

Type 'B' rubber sold by Lalit = 120×0.25

= 30

S100. Ans.(d)

Sol. Required amount = 60×4+75×6–40×4–60×6

=240+450–160–360

=690–520=170

S101. Ans (b)

Sol. Required Ratio = $\frac{\frac{25}{100}\times 600}{[\frac{40}{100}+\frac{30}{100}]\times 600} = \frac{25}{70} = 5 : 14$

S102. Ans (e)

Sol. Required difference = $\left(\frac{70}{100}\right) \times 600 - \left(\frac{35}{100}\right) \times 600$ = 420-210 = 210

S103. Ans (c)

Sol. Required percentage

$= \frac{70-50}{50} \times 100$

$= \frac{20}{50} \times 100 = 40\%$

S104. Ans (e)

Sol. Required average

$= \frac{1}{3}\left[\frac{80}{100} + \frac{60}{100} + \frac{70}{100}\right] \times 600$

= 420

S105. Ans (a)

Sol. Required total

$= \left[\frac{25}{100} + \frac{25}{100} + \frac{20}{100}\right] \times 600$

= 70× 6 = 420

S106. Ans.(a)

Sol.

Total pens sold by P, R & T together

= 180 + 180 + 120

= 480

Total note books sold by P & U together

= 280 + 280

= 560

Required % = $\frac{480}{560} \times 100 = 85\frac{5}{7}\%$

S107. Ans.(b)

Sol.

Required ratio = $\frac{320+180}{220+220}$

$= \frac{500}{440}$

= 25 : 22

S108. Ans.(c)

Sol.

Total note books sold by P & U together

= 280+280

= 560

Total pens sold by R & T together = 180 + 120 = 300

Required % = $\frac{560-300}{300} \times 100$

= $\frac{260}{300} \times 100$

= $86\frac{2}{3}\%$

S109. Ans.(d)

Sol.

Average number of pen sold by P, Q & T

= $\frac{180+240+120}{3}$

= $\frac{540}{3}$

= 180

Average number of note books sold by T & U

= $\frac{240+280}{2}$

= $\frac{520}{2}$

= 260

Required difference = 260 – 180 = 80

S110. Ans.(c)

Sol.

Total number of pencils sold by Q, S & U together

= 220 + 180 + 220

= 620

Total number of note books sold by P, R & T together

= 280 + 240 + 240

= 760

Required difference = 760 – 620 = 140

S111. Ans.(a)

Sol.

No. of male student playing Hockey of college L

= $450 \times \frac{8}{9}$ = 400

Average no. of student playing Hockey of college M & O

= $\frac{400+500}{2}$

= 450

Required percentage = $\frac{400}{450} \times 100 = 88\frac{8}{9}\%$

S112. Ans.(c)

Sol.

Student who left playing Cricket of college N

$= 350 \times \frac{1}{7} = 50$

Total student playing Football of college N

$= 450 + 50 = 500$

Required ratio $= \frac{500+300}{500+300} = 1 : 1$

S113. Ans.(b)

Sol.

Average no. of student playing Hockey of college K, L and O

$= \frac{(250+450+500)}{3} = 400$

Average no. of student playing Football of college K, L and M

$= \frac{400+350+300}{3} = 350$

Required difference = 400 – 350 = 50

S114. Ans.(e)

Sol.

Total no. of student playing Cricket of college L and M together

$= 400 + 300 = 700$

Total no. of student playing Hockey of college K and M together

$= 250 + 400 = 650$

Required percentage $= \frac{700-650}{650} \times 100 = 7\frac{9}{13}\%$

S115. Ans.(d)

Sol.

Total student in college K in 2014 = 400 + 500 + 250 = 1150

Total student in college K in 2015

$= 1150 \times \frac{120}{100} = 1380$

Student playing Football of college K in 2015

$= 1380 \times \frac{5}{10}$

$= 690$

Required average $= \frac{400+690}{2}$

$= \frac{1090}{2}$

$= 545$

S116. Ans.(d)

Sol.

Total sold TV's of MI brand

$= 7200 \times \frac{25}{100}$

$=1800$

Total sold TV's of Sony &Onida together

$= 7200 \times \frac{(12+10)}{100}$

$= 7200 \times \frac{22}{100}$

$= 1584$

Required percentage $= \frac{1800-1584}{1800} \times 100$

$= \frac{216 \times 100}{1800}$

$= 12\%$

Alternative solution

Required percent= $= \frac{25-(12+10)}{25} \times 100 = 12\%$

S117. Ans.(e)

Sol.

Average numbers of sold TV's of ONIDA &Tosiba brand

$= \frac{7200 \times \frac{(10+13)}{100}}{2}$

$= \frac{1656}{2}$

$= 828$

Average number of sold TV's of LG & Sony brand

$= \frac{7200 \times \frac{(16+12)}{100}}{2}$

$= \frac{2016}{2}$

$= 1008$

Required difference = 1008 – 828 = 180

S118. Ans.(a)

Sol.

Total LED TV's sold by Samsung & MI together

$= 7200 \times \frac{24}{100} \times \frac{5}{12} + 7200 \times \frac{25}{100} \times \frac{4}{9}$

$= 720 + 800$

$= 1520$

Total LCD TV's sold by Samsung & MI together

$= 7200 \times \frac{24}{100} \times \frac{7}{12} + 7200 \times \frac{25}{100} \times \frac{5}{9}$

$= 1008 + 1000$

$= 2008$

Required difference = 2008 – 1520 = 488

S119. Ans.(b)

Sol.

Required ratio = $\frac{7200\times\frac{(16+10)}{100}}{7200\times\frac{(24+12)}{100}}$

= 13 : 18

Or, Alternative —

Required ratio = $\frac{(16+10)\%}{(24+12)\%}$

= 13 : 18

S120. Ans.(c)

Sol.

Required percentage = $\frac{7200\times\frac{16}{100}-7200\times\frac{13}{100}}{7200\times\frac{13}{100}}\times 100$

= $\frac{1152-936}{936}\times 100$

= $\frac{216}{936}\times 100$

= $23\frac{1}{13}\%$

Or

alternative

= $\frac{16-13}{13}\times 100$

= $\frac{300}{13}$

= $23\frac{1}{13}\%$

S121. Ans(c)

Sol.

Total number of students who did not belongs to 'SC' category from IIT DELHI and IIT MADRAS in the years 2016 & 2017 respectively

= $360\times\frac{8}{9}+420\times\frac{6}{7}$

= 320 + 360

= 680

S122. Ans.(b)

Sol.

Total boys take admission in IIT MADRAS in the year 2016

= $480\times\frac{5}{6}=400$

Required percentage = $\frac{420-400}{420}\times 100$

= $4\frac{16}{21}\%$

S123. Ans.(d)

Sol.

Average number of students take admission in IIT KANPUR in the both years

$= \frac{460+340}{2}$

$= \frac{800}{2}$

$= 400$

Average number of students take admission in IIT GUHAWATI in the both years

$= \frac{300+160}{2}$

$= \frac{460}{2}$

$= 230$

Required difference = 400 – 230 = 170

S124. Ans.(e)

Sol.

Total students take admission in the year 2016 belongs to general category in IIT DELHI

$= 360 \times \frac{50}{100} = 180$

Total students take admission in the year 2017 belongs to OBC category in IIT DELHI

$= 220 \times \frac{25}{100}$

$= 55$

Required percentage $= \frac{180-55}{55} \times 100$

$= 227\frac{3}{11}\%$

S125. Ans.(a)

Sol.

Required ratio $= \frac{480+300}{220+280}$

$= 39 : 25$

S126. Ans.(b)

Sol.

Let total number of TV sold by store A is 4x and by store B is 5x

Required percentage $= \frac{\left(\frac{18+10}{100}\right)\times 5x}{\frac{(10+15)}{100}\times 4x} \times 100$

$= 140\%$

S127. Ans.(a)

Sol.

Let total number of TV sold by store A is 4x and by store B is 5x

$\frac{16}{100} \times 5x + \frac{24}{100} \times 4x = 3520$

80x + 96x = 352000

x = 2000

Average no. of LG & Sansui TV sold by store A

$= \frac{1}{2}\left[\frac{(18+10)}{100} \times 2000 \times 4\right]$

= 1120

No. of Samsung TV sold by Store B

$= \frac{15}{100} \times 2000 \times 5 = 1500$

Required difference = 1500 – 1120 = 380

S128. Ans.(c)

Sol.

Let total number of TV sold by store A is 4x and by store B is 5x

Required ratio $= \frac{\frac{(17+18)}{100} \times 5x}{\frac{(15+10)}{100} \times 4x}$

$= \frac{35 \times 5}{25 \times 4} = 7 : 4$

S129. Ans.(e)

Sol.

Let total no. of TV sold by store B is 5x

ATQ -

$5x \times \frac{18}{100} \times \frac{2}{5} \times \frac{25}{100} = 360$

x= 4000

Total LG TV sold by store B

$= 4000 \times 5 \times \frac{18}{100} = 3600$

Total 36 inch LG TV sold by store B

$= 3600 \times \frac{3}{5}$

= 2160

S130. Ans.(d)

Sol.

Total TV sold by Store A $= \frac{320}{16} \times 100$

= 2000

Total TV sold by store B $= \frac{2000}{4} \times 5 = 2500$

Total Micromax TV sold by Store B

$= \frac{17}{100} \times 2500 = 425$

Total Sansui TV sold by Store A $= \frac{10}{100} \times 2000 = 200$

Required percentage $= \frac{425-200}{200} \times 100$ = 112.5%

S131. Ans.(a)

Sol.

Total 8 GB mobile phones sold by A = $(4000 + 3000) \times \frac{40}{100} - 4000 \times \frac{45}{100} = 1000$

Total 8 GB mobile phones sold by B = $(6000 + 4000) \times \frac{80}{100} - 6000 \times \frac{2}{3} = 4000$

Required percentage = $\frac{(1000+4000)}{10000} \times 100 = 50\%$

S132. Ans.(c)

Sol.

Total unsold mobiles by B & C = $(6000 + 4000) \times \frac{20}{100} + (5000 + 4000) \times \frac{40}{100}$

$= 2000 + 3600 = 5600$

Average = $\frac{5600}{2} = 2800$

Total sold mobiles by C = $(5000 + 4000) \times \frac{60}{100} = 5400$

Required difference = $5400 - 2800 = 2600$

S133. Ans.(d)

Sol.

Total 8GB mobiles sold by A = $(4000 + 3000) \times \frac{40}{100} \times \frac{2}{7} = 800$

Total 8GB mobiles sold by C = $(5000 + 4000) \times \frac{60}{100} \times \frac{4}{9} = 2400$

Required sum = 800 + 2400 = 3200

S134. Ans.(a)

Sol.

Total unsold mobiles by A = $(4000 + 3000) \times \frac{60}{100} = 4200$

Total unsold mobiles by B = $(6000 + 4000) \times \frac{20}{100} = 2000$

Required percentage = $\frac{4200 - 2000}{2000} \times 100 = 110\%$

S135. Ans.(d)

Sol.

Total sold mobiles by A = $(4000 + 3000) \times \frac{40}{100} = 2800$

Total sold mobiles by B = $(6000 + 4000) \times \frac{80}{100} = 8000$

Total sold mobiles by C = $(5000 + 4000) \times \frac{60}{100} = 5400$

Required average = $\frac{2800 + 8000 + 5400}{3}$

$= \frac{16200}{3} = 5400$

Solution (136-141):

Number of Medical books = $\frac{24000 \times 7}{16} = 10{,}500$

Number of Non-Medical books = 24,000 -10,500 = 13,500

Number of books for MBBS = $\frac{10{,}500}{210} \times 110 = 5500$

Number of books for BDS= 10500- 5500=5000

Number of books for BSC = 13,500 × $\frac{36}{100}$ × $\frac{4}{9}$ = 2160.

Number of books for Diploma = 13,500 × $\frac{36}{100}$ − 2160 = 2700

Total number of books for management and engineering = 13,500 – (2160 – 2700) = 8640

Number of books for management = 8640 × $\frac{21}{48}$ = 3780.

Number of books for engineering = 8640–3780 = 4860

S136. Ans.(b)

Sol. Required difference = 5000–4860 = 140

S137. Ans.(a)

Sol. Required ratio = $\frac{(5500+2700)}{(3780+4860)}$ = $\frac{205}{216}$

S138. Ans.(d)

Sol. Required % = $\frac{(5500-3780)}{5500} \times 100 = 31\frac{3}{11}\%$

S139. Ans.(a)

Sol. Required % = $\frac{8640}{10500} \times 100 = \frac{576}{7}\% = 82\frac{2}{7}\%$

S140. Ans.(c)

Sol. Required difference = (4860 +2160+2700)–(5000+3780) = 9720–8780 = 940

S141. Ans.(b)

Sol. Number of books for B.Tech = $\frac{4860\times7}{12}$ = 2835

Required percentage = $\frac{2835}{5000} \times 100 = 56.7\%$

S142. Ans.(c)

Sol.

Let initial average → x

Total score → 9x

ATQ,

9x + 100 = 10 (x + 8)

x=20

So, New average = 20 + 8 = 28

S143. Ans.(a)

Sol.

Let Veer, Sameer & Gopal initial investment be 10x , 12x & 9x respectively

Profit share of Veer , Sameer & Gopal

= (10x + 10x – 1000) : $(12x + 12x - 1200)$: (9x + 9x – 1500)

= $(20x - 1000) : (24x - 1200) : (18x - 1500)$

ATQ –

$\frac{(24x-1200)}{(20x-1000)+(18x-1500)} = \frac{16200}{40950-16200}$

$\frac{(24x-1200)}{(38x-2500)} = \frac{36}{55}$

$110x - 5500 = 114x - 7500$

$4x = 2000$

$x = 500$ Rs.

Initial investment of Gopal = $9 \times 500 = 4500\ Rs.$

S144. Ans.(d)

Sol.

Total age of 16 students = $16 \times x$

Total age of class including teacher = $16x + 54$

ATQ,

$\frac{16x + 54}{17} = x + 2$

$16x + 54 = 17x + 34$

$x = 20$ years

S145. Ans.(c)

Sol.

Let upstream speed = x

Downstream speed = 11x

Speed of boat $= \frac{1}{2}(x + 11x) = 30$

$\Rightarrow x = \frac{30 \times 2}{12} = 5$

$\Rightarrow$ upstream speed = 5 km/hr

Distance travelled in 5 hours in upstream = $5 \times 5 = 25$ km

S146. Ans.(c)

Sol.

Let the speed of stream be x kmh/r

Then, speed of boat in still water = 8x km/hr

ATQ,

$\frac{63}{8x+x} =$ 2hr 48 min.

$\Rightarrow x = 2.5$ km/hr

Speed of boat in still water = 20 km/hr

Required time = $\frac{56}{20-2.5} = \frac{56}{17.5} = 3$ hr 12min.

S147. Ans.(b)

Sol.

Let, speed of stream = x
Speed of boat = 3x
ATQ,
$\frac{60}{3x+x}+\frac{60}{3x-x}=4.5$
$\frac{60}{4x}+\frac{60}{2x}=4.5$
$\frac{15}{x}+\frac{30}{x}=4.5$
$\Rightarrow x = 10$
Speed of boat = 30 km/hr

S148. Ans.(b)

Sol.

Price increased by 25% or $\frac{1}{4}$

$\Rightarrow$

	Initial	:	Final
Price	4	:	5
Quantity	5	:	4

1 unit

$\therefore$ 1 unit = 8 litres
4 unit = 8 × 4 = 32 litres
$\therefore$ final rate of milk = $\frac{160}{32}$
= Rs 5 per litres
Alternate,
Let Initial Price of milk = 'x'
And initial quantity = 'y'
ATQ,
$x \times y = 160 = 1.25x \times (y-8)$
$\Rightarrow y = 1.25y - 10$
$\Rightarrow y = 40$
Final Price of milk = $\frac{160}{32}$ *or* $1.25 \times \frac{160}{40} = 5$

S149. Ans(a)

Sol.

Let length of smaller train be L m and longer train be (L + 60) m
ATQ –
$(144 + 108) \times \frac{5}{18} = \frac{L+L+60}{6}$
2L + 60 = 420
L = 180 m
Longer train length = 180 + 60 = 240 m
Let length of platform = P m

$108 \times \frac{5}{18} = \frac{P+240}{20}$

P + 240 = 600

P = 360 m

Let smaller train will cross the platform in T sec

$144 \times \frac{5}{18} = \frac{180+360}{T}$

40T = 540

T = 13.5 sec

S150. Ans.(a)

Sol.

Let principle be Rs P

We know for two years

$CI - SI = \frac{PR^2}{100^2}$ [R → rate]

$240 = \frac{PR^2}{100^2}$ ... (i)

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

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

$\frac{11}{25} + 1 = \left(1 + \frac{R}{100}\right)^2$

$1 + \frac{R}{100} = \frac{6}{5}$

R= 20%

Putting value of R in (i)

$\therefore 240 = \frac{P \times 20 \times 20}{100 \times 100}$

P = Rs 6000

S151. Ans(a)

Sol.

Total amount man has to pay to his friend = $10000 \times \frac{115}{100} = 11500$

Amount paid by man in 3 year= $11500 - 852 = 10648$

ATQ –

$10648 = 10000 \times \frac{80}{100}\left(1 + \frac{R}{100}\right)^3$

$\left(1 + \frac{R}{100}\right)^3 = \frac{10648}{8000}$

$\left(1 + \frac{R}{100}\right)^3 = \frac{1331}{1000}$

$\left(1 + \frac{R}{100}\right) = \frac{11}{10}$

R = 10%

S152. Ans. (c)

Sol. Speed of T_1 = 108 km/hr

$= 108 \times \frac{5}{18} = 30 m/s$

Let length of train T_1 be x m.

than that of tunnel be 2x m.

ATQ,

$\frac{3x}{30} = 18 \Rightarrow x = 180$ m.

Length of T_2 = 180 m.

Speed of $T_2 = 30 \times \frac{1}{2} = 15$ m/s.

$\therefore$ required time $= \frac{(180+180)}{45} = 8\ seconds$

S153. Ans.(b)

Sol.

Speed of Aman $= \frac{2340}{18} = 130$ m/s

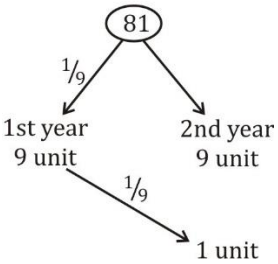
Speed of Satish $= \frac{40}{100} \times 130 = 52$ m/s

Time taken by Satish $= \frac{468}{52} = 9$ seconds

S154. Ans.(c)

Sol. $11\frac{1}{9}\% = \frac{1}{9}$

Let principle be 81 unit.



$\therefore$ 10 unit of 2nd year CI = Rs. 70

$\therefore$ 1 unit = Rs. 7

$\therefore$ Required amount = 7 × 81 = Rs. 567

S155. Ans.(b)

Sol.

Speed of Sita $= \frac{6000}{40} = 150$ words/min.

Speed of Sita on next day

$= 150 \times \frac{112}{100}$

= 168 words/min

Time taken to type essay next day

$= \frac{6000}{168}$

$= \frac{250}{7}$ min.

S156. Ans.(a)

Sol.

Let number of days he worked = x ,days for which be was idle be y and for days he was absent = z

ATQ,

$120x + 60y - 20z = 12000$

$6x + 3y - z = 600$ ...(i)

Also,

$x + y + z = 210$ ...(ii)

and,

$z = \frac{20}{100}y$

$\Rightarrow y = 5z$ ....(iii)

From (i), (ii) and (iii)

$z = 30$

S157. Ans.(c)

Sol.

$\frac{A}{B} = \frac{150}{100} = \frac{3}{2}$

$\Rightarrow A = \frac{3B}{2}$ ... (i)

$\frac{A}{B+C} = \frac{40}{100} = \frac{2}{5}$ ... (ii)

From (i) & (ii)

$\frac{C}{B} = \frac{11}{4}$

Efficiency of C with respect to B

$= \frac{11-4}{4} \times 100 = 175\%$ more efficient than B

S158. Ans.(a)

Sol.

Let two no's be x and y.

$x^2 + y^2 = 628$ ...(i)

ATQ,

$x = \frac{6}{11}y$ ... (ii)

from (i) and (ii)

$y = 22$

$x = 12$.

S159. Ans.(c)

Sol.

Priya — 2×9
Sheetal — 8×8 $= 9 : 32 : 21$
Sakshi — 7×6

Sakshi's share $= \frac{21}{62} \times 24800$
$=$ Rs. 8400

S160. Ans.(d)
Sol.
$x_1 + x_2 + x_3 + x_4 + x_5 + x_6 = 285$
$x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} = 291$
$x_1 + x_2 + \cdots x_{11} = 47 \times 11 = 517$
$x_6 = (285 + 291) - 517$
$= 576 - 517$
$= 59$

S161. Ans.(c)
Sol.
Required probability $= \frac{^8C_2}{^{52}C_2} = \frac{14}{663}$

S162. Ans.(d)
Sol. ATQ,
Amount invested in scheme B $= P\left[1 + \frac{20}{100}\right]^2 = \frac{36P}{25}$
Also,
SI $= \frac{36P \times 25 \times 4}{25 \times 100} = \frac{36P}{25}$
Now,
$\frac{36P}{25} - P = 16500$
$\frac{11P}{25} = 16500$
$P \Rightarrow 1500 \times 25$
P = Rs 37500

S163. Ans.(a)
Sol.
Runs scored in 10 overs = $8.5 \times 10 = 85$
Runs scored in last two overs = 35
Required run rate $= \frac{85+35}{12} \Rightarrow \frac{120}{12} = 10$

S164. Ans.(c)
Sol.
Possible outcomes = {3G4B, 4G3B, 5G2B, 6G1B}

Required probability $= \frac{{}^{6}C_3\ {}^{7}C_4 + {}^{6}C_4\ {}^{7}C_3 + {}^{6}C_5\ {}^{7}C_2 + {}^{6}C_6\ {}^{7}C_1}{{}^{13}C_7}$

$= \frac{1358}{1716} = \frac{679}{858}$

S165. Ans.(e)

Sol.

Let 5 consecutive multiples of 4 be 4(x – 2), 4(x – 1), 4x, 4(x + 1), 4(x + 2)

ATQ,

4(x – 2) + 4(x – 1) + 4x + 4(x + 1) + 4(x + 2) = 100

20x = 100

x=5

∴ S_1 series is 12, 16, 20, 24, 28

Let S2 series be

y – 2, y, y + 2, y+ 4

now,

ATQ,

y = 28 – 6 = 22

Required average $= \frac{20+22+24+26}{4} = \frac{92}{4} = 23$

S166. Ans.(b)

Sol.

Percentage gain $= \frac{20}{80} \times 100$

$= 25\%$

S167. Ans.(a)

Sol.

Ratio of area of two squares $= \frac{a_1^2}{a_2^2} = \frac{225}{256}$

$\Rightarrow \frac{a_1}{a_2} = \frac{15}{16}$

Ratio of their diagonals $\Rightarrow \frac{\sqrt{2}a_1}{\sqrt{2}a_2}$

$= \frac{\sqrt{2}\times 15}{\sqrt{2}\times 16} = \frac{15}{16}$

S168. Ans.(c)

Sol.

Let C.P. of watch for P be Rs. 100

Amount paid by R

$= 120 \times \frac{90}{100}$

$=$ Rs. 108

ATQ,

$108 \rightarrow 2160$

$1 \rightarrow 20$

$100 \rightarrow 2000$

C.P. of watch for P= Rs. 2000

Required price at which P sold to Q

$= 2000 \times \frac{120}{100}$

= Rs. 2400

S169. Ans.(a)

Sol.

Required ways = 5! × 3!

= 120 × 6

= 720

S170. Ans(b)

Sol.

Let cost price of two articles A & B be Rs. 160x and Rs. 180x respectively

Marked price of article A = $160x \times \frac{125}{100}$ = 200x Rs.

Marked price of article B = $180x \times \frac{112.5}{100} = 202.5x\ Rs.$

Selling price of article A = $200x \times \frac{85}{100} = 170x$ Rs.

Selling price of article B = $202.5x \times \frac{90}{100} = 182.25x\ Rs.$

Profit = (182.25x +170x) − (160x + 180x)

= 12.25x

Given, 12.25x = 110.25

x = 9 Rs.

Total cost price of article A & B = $(160 \times 9) + (180 \times 9)$

= 1440 + 1620

= 3060 Rs.

S171. Ans.(e)

Sol.

Let the cost price of article be Rs 100x

∴ Marked price = Rs 140x

& selling price = $140x \times \frac{75}{100} =$ Rs 105x

Profit = Rs 5x

New marked price = Rs 160x

New selling price = $160x \times \frac{75}{100} =$ Rs 120x

∴ new profit = Rs 20x

Required percentage = $\frac{20x-5x}{120x} \times 100$

= 12.5%

S172. Ans.(a)

Sol.

Total possible outcomes = $2^3 = 8$

No. of favorable outcomes = 6 (HHT, HTH, THH, TTH, THT, HTT)

Hence, Probability = $\frac{6}{8} = \frac{3}{4}$

S173. Ans.(c)

Sol.

Let the length and breadth be 6x cm and 5x cm respectively

ATQ,

$\frac{2(6x+5x)}{6x \times 5x} = \frac{2}{15} \quad \Rightarrow \frac{22x}{30x^2} = \frac{2}{15}$

$\Rightarrow 330 = 60x$

$\Rightarrow x = 5.5$

Length = 33 cm, breadth = $5x = 5 \times 5.5 = 27.5$ cm

Perimeter of rectangle = 2 (33 + 27.5) = 121 cm

Side of square = $\sqrt{121} = 11$ cm

Perimeter of square = 44 cm

S174. Ans.(a)

Sol.

Let radius of sphere is x m.

And side of cube is y m.

Area of sphere = $4\pi x^2$

Area of cube = $6a^2$

ATQ,

$4\pi x^2 = 6a^2$

$\frac{x^2}{a^2} = \frac{6 \times 7}{4 \times 22}$

$\frac{x^2}{a^2} = \frac{21}{4 \times 11}$

$\frac{x}{a} = \frac{\sqrt{21}}{2\sqrt{11}}$

S175. Ans.(a)

Sol.

Volume of right circular cylinder (V) = $\pi r^2 h$

ATQ,

$\pi r^2 h = 500\pi$

$\pi \times 10 \times 10 \times h = 500\pi$

h = 5 cm.

Let side of square be a cm.

$\therefore$ diagonal = $\sqrt{2}$ a

$\sqrt{2}$ a = 5

a = $\frac{5}{\sqrt{2}}$

∴ Perimeter of square = 4a = 4 × $\frac{5}{\sqrt{2}}$

= 10$\sqrt{2}$ cm

S176. Ans.(a)

Sol.

$\frac{^{8}C_{1}}{^{X+13}C_{1}} = \frac{1}{3}$

$\frac{8}{X+13} = \frac{1}{3}$

24 = X + 13

∴ X = 11

S177. Ans.(d)

Sol.

As chocolate are identical so their no. does not affect the probability

Now, probability of choosing a colored ribbon = $\frac{1}{5}$

Probability of choosing a box = $\frac{1}{5}$

Combined probability = $\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$

S178. Ans.(b)

Sol.

Ratio of length & breadth of a rectangle and side of square = 7 : 4 : 5

Let length & breadth of a rectangle and side of square be 7x, 4x & 5x respectively

ATQ –

$2(7x + 4x) - 4 \times 5x = 8$

$22x - 20x = 8$

x = 4 m

Length of rectangle = 28 m

Breadth of rectangle = 16 m

Area of rectangle = $28 \times 16 = 448$ m^2

S179. Ans.(b)

Sol.

Let amount of mixture removed ='x'

And, Milk = 3litre, Water = 1litre

ATQ,

$\frac{1}{1} = \frac{3-\frac{3x}{4}}{1-\frac{x}{4}+x}$

$\Rightarrow 1 + \frac{3x}{4} = 3 - \frac{3x}{4}$

$\Rightarrow 2 = \frac{6x}{4}$

$\Rightarrow x = \frac{4}{3}$

Required percentage=$\frac{\frac{4}{3}}{4} \times 100 = 33.33\%$

S180. Ans.(a)

Sol.

Initial quantity of acid $= 10 \times \frac{10}{100}$

$= 1\ \ell$

And that of water = 9 ℓ

Let x litre water is added.

$\therefore \frac{4}{100} \times (10 + x) = 1$

$\Rightarrow x = 15\ \ell$

S181. Ans.(e)

Sol.

Let, total quantity = 100ℓ

Quantity of milk = 60 ℓ

And quantity of milk = 40 ℓ

ATQ,

$\frac{40}{100} = \frac{60}{100+x}$

2 (100 + x) = 5 × 60

200 + 2x = 300

2x = 100

x = 50 ℓ

Water added in % $= \frac{50}{100} \times 100$

$= 50\%$

S182. Ans.(d)

Sol.

ATQ,

Initially Quantity of milk

$= \frac{3}{5} \times 25 = 15\ell$

Initially quantity of water

$= \frac{2}{5} \times 25 = 10\ell$

'x' ℓ of water is added to make the ratio of milk and water 1 : 1 ⇒ Quantity of milk initially is same as quantity of water after adding 'x' ℓ water = 15ℓ.

⇒ x = 15 – 10 = 5ℓ

Quantity of total mixture now = 25 + 5 = 30ℓ.

'y' ℓ of milk is added now to make the proportion of milk and water same as before = 3 : 2

$\Rightarrow \frac{3}{5} = \frac{15+y}{30+y}$

$\Rightarrow 90 + 3y = 75 + 5y$

$2y = 90 - 75$

$y = 7.5\ \ell$

Required $\% = \frac{7.5-5}{5} \times 100$

$= \frac{2.5}{5} \times 100 = 50\%$

S183. Ans(d)

Sol.

A = 45 hr

B = $\frac{45}{3} \times 2 = 30\ hr$

Total capacity of tank = 45 × 2 = 90 units

Efficiency of A = 2 units/hr

Efficiency of B = 3 units/hr

C $= \frac{90}{3} - 7.5$

$= 22.5$ hr

C efficiency $= \frac{90}{22.5}$

$= 4$ units/hr

According to question

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

$\Rightarrow 10x - 4x = 36$

$x = 6$ hr

S184. Ans.(a)

Sol.

Let efficiency of boys be B

& girls be G

ATQ,

$$\frac{(4B + 8G) \times 5}{\frac{1}{3}} = \frac{(7B + 11G) \times 3}{\frac{1}{3}}$$

20B + 40G = 21B + 33G

B = 7G

Let total girls who completed remaining work be x

$$\therefore \frac{(7 \times 7G + 11G) \times 3}{\frac{1}{3}} = \frac{(7 \times 7G + xG) \times 2}{\frac{1}{3}}$$

x = 41 girls

∴ required girls = 41 – 11 = 30 girls

S185. Ans.(c)

Sol.

Let the efficiency of A and C is 2x and x respectively

Therefore, the efficiency of B is $x\left[1+\frac{166\frac{2}{3}}{100}\right]=\frac{8x}{3}$

Overall ratio of efficiency of A, B and C is $2x:\frac{8x}{3}:x$

= 6x : 8x : 3x

Time taken by A to complete 100% of work is 100 days.

Hence total work units are 100 × 6x = 600x units

Time taken by B and C together to complete the work is

$=\frac{600x}{8x+3x}=54\frac{6}{11}$ days

S186. Ans.(b)

Sol.

Let the cost price of balls is 5x and 6x.

According to question,

0.5x + 0.6x = 22

⇒ 1.1x = 22

x = 20

∴ cost price of balls is Rs. 100 and Rs. 120

If he sell first at $= 100\left[1-\frac{20}{100}\right]$ = 80 Rs.

And second at $= 120\left[1+\frac{30}{100}\right]$ = Rs. 156

Then Overall profit = (156 + 80) – 220 = Rs. 16

S187. Ans(d)

Sol.

Let age of Sandeep & Ankit four years ago be 2x & 3x respectively

Present age of Anurag = 2x

ATQ –

$\frac{2x+12}{3x+12}=\frac{3}{4}$

8x + 48 = 9x +36

x = 12

Anurag age four years hence = $12\times2+4=28\ years$

Ankit's age four years hence = $12\times3+8=44\ years$

Required ratio = $\frac{28}{44}$

= 7 : 11

S188. Ans.(e)

Sol.

Total age of X, Y and Z = 21 × 3 = 63 years.

Total age 7 years later= 63 + 21 = 84 years.

Required Average = $\frac{1}{2}\left[\frac{84}{14} \times 8 - 14\right]$ = 17 years

S189. Ans(e)

Sol.

Total present age of A, B & C $= 24 \times 3 - 4 \times 3 = 60\ years$

Let present age of B = 6x

So, present age of C = 5x

And, present age of A = 5x − 4

ATQ −

6x + 5x + 5x −4 = 60

16x = 64

x = 4 years

Age of A after two years = $5\times 4 - 4 + 2 = 18\ years$

Age of B after two years = $6\times 4 + 2 = 26\ years$

Required average = $\frac{18+26}{2}$ = 22 years.

S190. Ans.(a)

Sol.

Let income of C be Rs 100x

Then that of A=$Rs\,\frac{250}{3}x$

B's income=$Rs\ \left(\frac{250}{3}x + 400\right)$

ATQ

$\left(\frac{250}{3}x + 400\right) - 175 = \frac{\left(\frac{250}{3}x + 100x\right)}{2}$

$x = 27$

Income of A=$\frac{250}{3} \times 27 = Rs\ 2250$

S191. Ans.(e)

Sol.

Quantity I.

Quantity of water = 10 × 90 × 20 = 18000 cm^3

1000 cm^3 = 1 lit ⇒ 18000 cm^3= 18 lit

Quantity II.

Mixture I		**Mixture II**
60%		75%
	65%	
10%	:	5%
2	:	1

1 unit → 9 lit
2 unit → 18 lit
Quantity I = Quantity II

S192. Ans.(b)
Sol.
Quantity I: Let present age of Heena be x years.
and the present age of Meena be y years.
ATQ,
$\frac{x-7}{y-12} = \frac{5}{6} \Rightarrow 6x - 42 = 5y - 60$
$\Rightarrow 6x - 5y = -18$ ...(i)
And
$\frac{y+8}{x+8} = \frac{5}{4}$
$\Rightarrow 4y + 32 = 5x + 40$
$\Rightarrow 5x - 4y = -8$ ...(ii)
From (i) and (ii),
x = 32 years and y = 42 years
Required average = $\frac{32+42}{2}$ = 37 years.

Quantity II
Age of first new student = 7 × 26 – 6 × 24.5 = 35 years.
Age of second new student = 8 × 28.5 – 7 × 26 = 46 years.
Required average = $\frac{35+46}{2}$ = 40.5 years.
Quantity II > Quantity I

S193. Ans.(b)
Sol.
Quantity I: Let the income of Gopal be $100x$
Saving = Rs $12x$, Expenditure = $100x - 12x$ = Rs. $88x$
New income = Rs. $120x$
New expenditure = Rs. $88x \times \frac{9}{8}$ = Rs. $99x$
New savings = Rs. $120\ x - 99x$ = Rs. $21x$
Increment in saving = $21x - 12x$ = Rs. $9x$
Required % = $\frac{9x}{100x} \times 100 = 9\%$
Quantity II:
$7961 = 40000\left[1 + \frac{R}{100}\right]^2 - 40000$
$\Rightarrow \left[1 + \frac{R}{100}\right]^2 = \frac{47961}{40000}$
$\Rightarrow \left[1 + \frac{R}{100}\right] = \sqrt{\frac{47961}{40000}} = \frac{219}{200}$

$\Rightarrow \frac{R}{100} = \frac{19}{200} \Rightarrow R = 9.5\%$

Quantity II > Quantity I

S194. Ans.(e)

Sol.

Quantity I:

Required probability = $\frac{4}{10} \times \frac{3}{9} \times \frac{2}{8} = \frac{1}{30}$

Quantity II:

Number divisible by 28 (up to 300) = $\frac{300}{28} = 10$

Required probability = $\frac{10}{300} = \frac{1}{30}$

Quantity I = Quantity II

S195. Ans.(a)

Sol.

Quantity I:

Time taken by Bhavya alone to complete the work = $\frac{3}{2} \times 12 = 18$ days.

Time taken by Sambhu alone to complete the same work = $\frac{4}{3} \times 18 = 24$ days

Time taken by both = $\frac{18 \times 24}{24+18} = \frac{72}{7}$ days.

Quantity II:

Let the efficiency of 1 man = 1 unit/day

Total work = 11 × 12 = 132 unit

In 5 days = 12 × 5 = 60 unit

Remaining work = 72 unit

Total time = $5 + \frac{72}{16} = 9\frac{1}{2}$ days.

Quantity I > Quantity II

S196. Ans.(e)

Sol.

Let the age of Abhi, Billi and Chauhan is A, B and C years respectively.

From (i)

C : B is 3 : 2

From (ii)

$\frac{A-6}{B+2} = \frac{1}{2} \Rightarrow 2A - B = 14$

Hence age of Chauhan can't be calculated from both statements.

S197. Ans.(b)

Sol.

Nothing can be said from Ist statements as time is not given.

From (ii)

Rs. 76 is obtained in 19 years, which means Rs. 4 per year on Rs. 100.
Hence rate is 4%.
Hence, answer can be calculated only from statement (ii)

S198. Ans.(a)
Sol.
Area of equilateral Δ is $\frac{\sqrt{3}}{4}a^2$ where a is side of equilateral triangle.
From (i) height of equilateral triangle is $\frac{\sqrt{3}}{2}$a
$\therefore \frac{\sqrt{3}}{2}a = 3\sqrt{3}$ cm
$\Rightarrow$ a = 6 cm.
$= \frac{\sqrt{3}}{4} \times 36 \Rightarrow 9\sqrt{3}$ cm^2
Nothing can be said from statement II.
Answer can be calculated only from statement (i)

S199. Ans.(c)
Sol.
Let Veer's present age = x
$\Rightarrow$ Atul's present age = x – 10
From A →
Abhi's present age = x – 15
ATQ,
$(x - 5) = \frac{120}{100}(x - 10)$
$5x - 25 = 6x - 60$
$x = 35$
So, Veer's present age = 35 years
From B →
$\frac{x}{x-10} = \frac{7}{5}$
$\Rightarrow 5x = 7x - 70$
$\Rightarrow x = 35$
So, Veer's present age = 35 years.
Either statement **A** or statement **B** by itself is sufficient to answer the question.

S200. Ans.(a)
Sol.
Let speed of boat in still water = a
Speed of stream = b
From A)
$a = \frac{150}{100}(a - b)$
$\Rightarrow 100a = 150a - 150b$

$\Rightarrow a = 3b$

From B)

$2 = \frac{32}{a-b} - \frac{32}{a+b}$

$\Rightarrow (a^2 - b^2) = 32b$

From (A) and (B) together

$9b^2 - b^2 = 32b$

$\Rightarrow 8b^2 = 32b$

$\Rightarrow 8b\ (b - 4) = 0$

$\Rightarrow b = 0, 4$

$\Rightarrow a = 12$

Speed of boat in downstream = a + b

= 12 + 4

= 16 km/hr

Both the statements taken together are necessary to answer the questions, but neither of the statements alone is sufficient to answer the question.