Directions (1-5): Two equations I and II are given below in each question. You have to solve these equations and give answer accordingly.
(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

Q1. I. $3x^2 + 17x + 10 = 0$
II. $10y^2 + 9y + 2 = 0$

Q2. I. $4x^2 = 49$
II. $9y^2 - 66y + 121 = 0$

Q3. I. $3x^2 + 5x + 2 = 0$
II. $y^2 + 12y + 27 = 0$

Q4. I. $x^2 - 7x + 10 = 0$
II. $y^2 - 14y + 45 = 0$

Q5. I. $6x^2 - 49x + 99 = 0$
II. $5y^2 + 17y + 14 = 0$

Directions (6-10): In each question two equations numbered (I) and (II) are given. Student should solve both the equations and mark appropriate answer.
(a) If $x = y$ or no relation can be established
(b) If $x > y$
(c) If $x < y$
(d) If $x \geq y$
(e) If $x \leq y$

Q6. I. $6x^2 + 13x + 6 = 0$
II. $2y^2 + 7y + 6 = 0$

Q7. I. $\frac{x}{3} + 1 = \frac{7}{15}$
II. $5(y - 2) + 18 = 0$

Q8. I. $4x^2 + 16x + 15 = 0$
II. $2y^2 + 5y + 3 = 0$

Q9. I. $12x^2 - 17x + 6 = 0$
II. $35y^2 - 29y + 6 = 0$

Q10. I. $x(4x - 9) = 9(16 - x)$
II. $4y^2 + 20y + 25 = 0$

Directions (11-15) : 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 $x \leq y$
(d) if $x \geq y$
(e) if $x = y$, or relationship between x and y can't be established.

Q11. I. $5x^2 = 19x - 12$
II. $5y^2 + 11y = 12$

Q12. I. $x^2 = \sqrt[3]{1331}$
II. $2y^2 - 21y + 55 = 0$

Q13. I. $2x^2 - 11x + 12 = 0$
II. $2y^2 - 17y + 36 = 0$

Q14. I. $2x^2 + 16x + 30 = 0$
II. $y^2 + 8y + 15 = 0$

Q15. I. $13x^2 - 106x + 160 = 0$
II. $6y^2 + 19y + 15 = 0$

Directions (16-40): What value will come in place of question mark (?) in the given questions?
Q16. $? \div 20 = \sqrt{42^2 - 24 \times 48 - 24^2}$
(a) 720
(b) 120
(c) 60
(d) 180
(e) 240

Q17. $25\% \ of \ ? = \sqrt{2704} + 576 \div 18 - (64)^{1/3}$
(a) 280
(b) 300
(c) 360
(d) 400
(e) 320

Q18. $?^2 = \sqrt{55\% \ of \ 960 + 75\% \ of \ 640 + 2 \times 12^2}$
(a) 6
(b) 16
(c) 36
(d) 256
(e) 4

Q19. $2^? = 256 \div 16 \times 2048 \div 64 \div 128$
(a) 1
(b) 2
(c) 3
(d) 4
(e) 5

Q20. $55\% \ of \ ? = 45 \times 12 - 36 \times 14 + 8\% \ of \ 375$
(a) 60
(b) 80
(c) 100
(d) 120
(e) 140

Q21. $220 + 33\frac{1}{3}\% \ of \ 1020 + ? = 5\frac{5}{9}\% \ of \ 2700 + 400$
(a) −10
(b) 10
(c) 20
(d) −20
(e) 15

Q22. $\frac{28}{252} \times \frac{9}{22} \times \frac{11}{3} \times ? = (10)^2$
(a) 400
(b) 500
(c) 600
(d) 650
(e) 550

Q23. $(1428 + 600 \div 2) \div (720 \div 5)$
(a) 14
(b) 144
(c) 18
(d) 16
(e) 12

Q24. $\sqrt{1714 + 520 \div 2 - 190 \times 5} = ?$
(a) 32
(b) 36
(c) 42
(d) 52
(e) 26

Q25. $25^{2.7} \times 5^{4.2} \div 5^{6.4} = 25^{(?)}$
(a) 1.7
(b) 3.2
(c) 1.6
(d) 3.6
(e) 2.8

Q26. $\sqrt{441 - 41} \times 42 \div 7 = ?$
(a) 20
(b) 60
(c) 180
(d) 120
(e) 80

Q27. $\frac{?}{\sqrt{25}} = \frac{15 \times 4 - 40}{2}$
(a) 20
(b) 45
(c) 25
(d) 50
(e) 60

Q28. $621 \div 27 \times 2 - 37 = \sqrt{?}$
(a) 9
(b) 3
(c) 81
(d) $3\sqrt{3}$
(e) 21

Q29. 36% of 250 × 18% of 50 = ? + 10
(a) 820
(b) 810
(c) 790
(d) 800
(e) 700

Q30. $[(7)^2 - (6)^2] \div 26 = 18 \div ?$
(a) 18
(b) 36
(c) 9
(d) 40
(e) 42

Q31. $\sqrt{12.25} \times 18 - (?)^2 = (6)^2 + \sqrt{4}$
(a) 7
(b) 6
(c) 5
(d) 4
(e) 3

Q32. (1250 + 1725) ÷ (825 + 365) = ?
(a) 1.5
(b) 2.5
(c) 1
(d) 2.25
(e) 2.75

Q33. $\sqrt{625} \div \sqrt{16} \times 6 = ?\%$ of 300
(a) 15
(b) 12.5
(c) 17.5
(d) 10
(e) 8.5

Q34. $26 \times 15 + 310 - (15)^2 = 25\%$ of ?
(a) 1600
(b) 1800
(c) 1900
(d) 1500
(e) 1700

Q35. $\sqrt{81} \times \sqrt{625} + 1225 = (?)^2 - 150$
(a) 50
(b) 45
(c) 35
(d) 30
(e) 40

Q36. $\sqrt{576} + \sqrt{961} + 9^3 = (?)^2$
(a) 28
(b) 26
(c) 24
(d) 22
(e) 18

Q37. $1250 \div 5^2 - 180 \div 6 = ?$
(a) 20
(b) 25
(c) 22
(d) None of these
(e) 18

Q38. $\sqrt{?} \times 12 = 1248 - 1120 + \sqrt{16}$
(a) 81
(b) 121
(c) 144
(d) 169
(e) 100

Q39. $-1215 + (3)^? \times 6 = 2136 - 1974 + 3^4$
(a) 7
(b) 3
(c) 4
(d) 6
(e) 5

Q40. 1718 – 1220 + 186 ÷ 6 – 219 = ?
(a) None of these
(b) 320
(c) 310
(d) 305
(e) 315

Directions (41-50): Which number is wrong in the following number series.

Q41. 84, 97, 114, 133, 156, 187
(a) 114
(b) 156
(c) 84
(d) 187
(e) 97

Q42. 121, 170, 251, 372, 543, 766
(a) 766
(b) 170
(c) 121
(d) 251
(e) 543

Q43. 210, 70, 280, 56, 336, 49
(a) 49
(b) 210
(c) 56
(d) 70
(e) 280

Q44. 19, 140, 259, 376, 490, 604
(a) 490
(b) 259
(c) 376
(d) 604
(e) 19

Q45. 21, 23, 49, 151, 609, 3053
(a) 3053
(b) 23
(c) 21
(d) 609
(e) 151

Q46. 84,   140,   185,   221,   250,   276
(a) 84
(b) 276
(c) 140
(d) 185
(e) 221

Q47. 81,   225,   153,   189,   173,   180
(a) 225
(b) 81
(c) 153
(d) 173
(e) 181

Q48. 328,   352,   337,   345,   342,   343
(a) 345
(b) 328
(c) 337
(d) 343
(e) 352

Q49. 190,   195,   203,   217,   243,   285,   381
(a) 371
(b) 285
(c) 195
(d) 217
(e) 243

Q50. 64,   32,   48,   120,   420,   1892
(a) 48
(b) 420
(c) 1892
(d) 64
(e) 32

Directions (51-70): What will come in the place of the question mark (?) in the following number series?
Q51. 2, 3, 7, 25, 121, ?
(a) 719
(b) 721
(c) 723
(d) 725
(e) 726

Q52. 5, 19, 45, 95, ?, 387
(a) 187
(b) 189
(c) 191
(d) 193
(e) 195

Q53. 2, 8, 20, 56, 200, ?
(a) 880
(b) 890
(c) 900
(d) 910
(e) 920

Q54. 32, 32, 16, 48, 12, ?
(a) 60
(b) 55
(c) 72
(d) 66
(e) 54

Q55. 6, 10, 19, 27, 54, ?
(a) 66
(b) 68
(c) 70
(d) 72
(e) 74

Q56. 5, 7, 11, 19, ?, 67
(a) 38
(b) 35
(c) 30
(d) 34
(e) 28

Q57. 1089, 360, 117, 36, 9, ?
(a) 2
(b) 1
(c) 0
(d) 3
(e) 4

Q58. ?, 9, 64, 25, 216, 49
(a) 8
(b) 4
(c) 1
(d) 3
(e) 2

Q59. 60, 83, ?, 198, 290, 405
(a) 166
(b) 150
(c) 129
(d) 145
(e) 139

Q60. 2, 4, 12, ?, 420, 4620
(a) 48
(b) 36
(c) 52
(d) 120
(e) 60

Q61. 92, 117, 217, 442, 842, ?
(a) 1367
(b) 1397
(c) 1457
(d) 1467
(e) 1497

Q62. ?, 212, 339, 508, 725, 996
(a) 120
(b) 121
(c) 116
(d) 115
(e) 125

Q63. 4, 6, 9, 13.5, 20.25, ?
(a) 30.375
(b) 30.275
(c) 29.375
(d) 32.375
(e) 32.275

Q64. 81, ?, 155, 276, 445, 734
(a) 105
(b) 104
(c) 106
(d) 110
(e) 112

Q65. 5986, 2996, 1502, 756, ?, 199
(a) 264
(b) 284
(c) 354
(d) 374
(e) 384

Q66. 180, 185, 193, 207, 233, ?
(a) 268
(b) 278
(c) 273
(d) 295
(e) 283

Q67. 160, 82, 84, 128, ?, 647
(a) 342
(b) 314
(c) 292
(d) 258
(e) 284

Q68. ?, 334, 166, 82, 40, 19
(a) 570
(b) 558
(c) 670
(d) 640
(e) 645

Q69. 1250, 961, 736, 567, 446, ?
(a) 365
(b) 385
(c) 280
(d) 340
(e) 345

Q70. 120, 120, 126, 146, 188, ?
(a) 240
(b) 220
(c) 225
(d) 275
(e) 260

Directions (71-90): Calculate the approximate value of the given questions:
Q71. $307.89 + 671.93 - 39.87\% \text{ of } ? + 79.89\% \text{ of } 354.93 = (27.87)^2$
(a) 1200
(b) 1175
(c) 1225
(d) 1250
(e) 1280

Q72. $\frac{177.8 + ?}{7.98} + 24.89 \times 41.87 - 15.98 \% \text{ of } 400 = (31.89)^2$
(a) 96
(b) 126
(c) 156
(d) 196
(e) 84

Q73. $\sqrt{1295.96} + \sqrt{2024.93} + \sqrt{1520.97} - \sqrt{?} = 12.93 \% \text{ of } 899.98$
(a) 5
(b) 7
(c) 13
(d) 16
(e) 9

Q74. $349.89 + \frac{55.98 \times 239.89}{13.86} + \sqrt{?} = (10.98)^3$
(a) 196
(b) 441
(c) 400
(d) 529
(e) 625

Q75. $31.96 \times 34.89 + \sqrt{960.89} + 18.98\%$ of ? $= 39.98\%$ of 3304.98
(a) 800
(b) 700
(c) 900
(d) 1000
(e) 950

Q76. 129.89% of $1199.82 + 1249.78 \div 49.98 \times 30.012 = ?$
(a) 2210
(b) 2380
(c) 2310
(d) 2530
(e) 2460

Q77. $155.9 \div \sqrt{168.81} + (2.98)^2 \times 39.89 = ?\%$ of 599.92
(a) 62
(b) 78
(c) 84
(d) 52
(e) 68

Q78. $\sqrt{80.98 \times 36.01} + 679.81 \div 17.01 = ? + (511.98)^{1/3}$
(a) 86
(b) 78
(c) 94
(d) 52
(e) 66

Q79. 1599.85% of $139.89 + ?\%$ of $1599.83 = 72.01 \times 39.81$
(a) 20
(b) 32
(c) 60
(d) 50
(e) 40

Q80. $(17.012)^2 + (21.89)^2 + (8.01)^2 + ? = 1749.821 - 820.01 + 2210.01$
(a) 2208
(b) 2256
(c) 2601
(d) 2303
(e) 2373

Q81. $1782.011 \div 53.99 + 455.889 - 2346.011 \times 1.011 = ? \times 2.93$
(a) −629
(b) −619
(c) 629
(d) 619
(e) −609

Q82. $(574.99 + 7511.11 - 2768.91) \div (76.1 \times 0.98 + 674.976 - 342.001) = \sqrt{?}$
(a) 529
(b) 49
(c) 169
(d) 289
(e) 729

Q83. $\left[\left(\sqrt{3843.9 \times 9.09}\right) \div (26.99)^{\frac{1}{3}}\right] \times 23.012 = ?^2 + 336.97$
(a) 33
(b) 23
(c) 27
(d) 37
(e) 43

Q84. $\sqrt{(95.99) \times 12.01 \div 17.9 + 25.899 - 9.011} = (64.9 - ?)\%$ of 35.88
(a) 50
(b) 35
(c) 30
(d) 40
(e) 20

Q85. $11.9 \times \sqrt{224.89} + 1212.09 - (1053.11 \div 8.9) = ?$
(a) 1,275
(b) 1,225
(c) 1,175
(d) 1,255
(e) 1,245

Q86. 27.82% of 449.92 + ?% of 1199.86 = 199.89 + 225.92
(a) 45
(b) 25
(c) 40
(d) 28
(e) 35

Q87. $1729.79 + 1269.89 + ? = 249.91 \times 19.83$
(a) 3000
(b) 2800
(c) 1800
(d) 2000
(e) 2200

Q88. $1149.89 + \sqrt{? - 14.92} = 89.815 \times 13.012$
(a) 520
(b) 425
(c) 415
(d) 445
(e) 515

Q89. $(?)^2 + (11.79)^2 + (6.01)^2 + (8.12)^3 = 499.825 + 448.02$
(a) 32
(b) 26
(c) 24
(d) 12
(e) 16

Q90. $\sqrt{410.01 + 220.10} - \sqrt{24.98} = ? + \sqrt{225.05}$
(a) 10
(b) 25
(c) 5
(d) 15
(e) 20

(Q1-15) 2 july rrb quiz
Directions (91-95): Study the table given below & answer the question.
Table given below shows the number of items sold by four different sellers in the five different months.

Seller / Month	A	B	C	D
Feb	–	42	52	64
March	48	–	24	74
April	32	28	48	56
May	36	64	–	32
June	54	81	36	–

Note- Some data are missing in the given table, find the missing data if necessary.

Q91. If seller A sold 150 items in January and February together and number of items sold by seller A in February and March together is 80% of the no. of items sold by same seller in May and June together then find no. of items sold in January by seller A?
(a) 108
(b) 132
(c) 126
(d) 92
(e) 96

Q92. If the ratio of total items sold by seller B in Feb & March together to total items sold by seller C in April & may together is 1 : 2 and items sold by C in May is 64. Then find total items sold by seller B in march?
(a) 14
(b) 20
(c) 24
(d) 12
(e) 32

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Q93. If average of items sold in April by all sellers is equal to average items sold in March by all sellers then total items sold by seller B in March is what percent of items sold by seller A in May?
(a) 40%
(b) 50%
(c) 70%
(d) 75%
(e) 60%

Q94. If no. of items sold by seller D in June is 50% more than no. of items sold by seller B in May then find the difference of total items sold by seller D in May & June together and total items sold by seller A in march & April together?
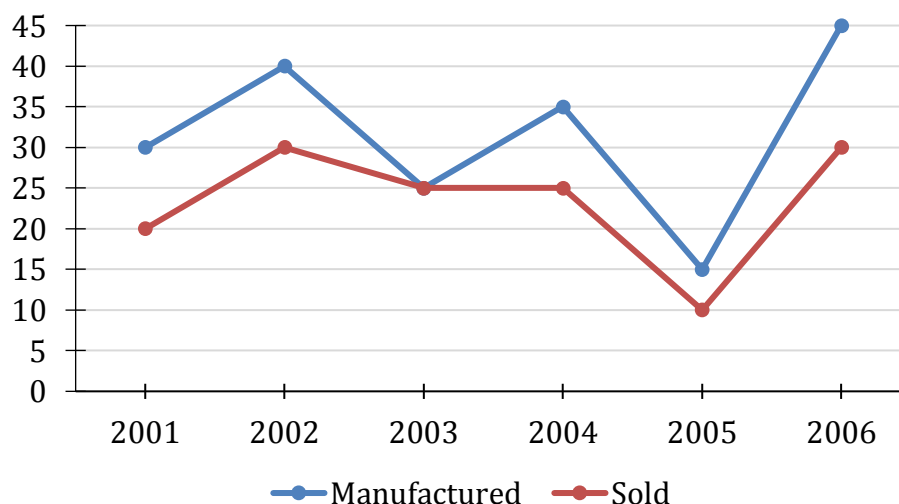(a) 58
(b) 32
(c) 36
(d) 42
(e) 48

Q95. Find the ratio of items sold by seller B in Feb & June together to items sold by seller C in May & June together if items sold by seller C in May is $33\frac{1}{3}$% of items sold by seller B in June?
(a) 47 : 23
(b) 41 : 23
(c) 43 : 21
(d) 41 : 21
(e) 31 : 21

Directions (96-100): The line graph given below shows the number of cars manufactured and sold by "Tata" in different years. (in lakh).
Study the line graph carefully and answer the questions.

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Q96. What is the difference between the number of cars manufactured by Tata in year 2002, 2004 and 2006 together and the number of cars sold in year 2001, 2003 and 2005 together(in lakh).
(a) 55
(b) 53
(c) 65
(d) 68
(e) 59

Q97. Find the ratio of the number of cars unsold in year 2002 and 2005 together to the number of cars sold in year 2004.
(a) 3 : 5
(b) 4 : 5
(c) 5 : 3
(d) 2 : 3
(e) 2 : 5

Q98. What is the average of numbers of car manufactured in year 2001 to 2004(in lakh).
(a) 31.5
(b) 35
(c) 33.5
(d) 30
(e) 32.5

Q99. Number of cars remains unsold in year 2006 is what percent of the total number of cars manufactured in year 2001 and 2005 together.
(a) 30%
(b) $33\frac{1}{3}\%$
(c) 50%
(d) $25\frac{1}{2}\%$
(e) 40%

Q100. If total cars manufactured in year 2007 is average of cars manufactured in year 2006 and 2005 and number of unsold cars is 20%. Then find the number of cars sold in year 2007?
(a) 24
(b) 28
(c) 22
(d) 20
(e) 18

Direction (101 – 105): Given below table shows total three types of shoes sold by a store on five days of a week. Table also shows given total formal shoes sold by store and percentage of casual and sport shoes sold by store. Read the data carefully and answer of the questions:
Note- only three types of shoes sold by the store.

Days	Formal Shoes	% of Casual Shoes	% of Sport shoes
Monday	240	32%	20%
Tuesday	320	48%	12%
Wednesday	420	45%	20%
Thursday	360	56%	20%
Friday	340	22%	10%

Q101. Total casual shoes sold by store on Monday & Friday together are what percent less than total Sport shoes sold by store on Wednesday & Thursday together?
(a) 60%
(b) 50%
(c) 20%
(d) 30%
(e) 10%

Q102. Find the difference between average number of casual shoes sold by store on Tuesday & Thursday and average number of formal shoes sold by store on Thursday & Friday?
(a) 260
(b) 264
(c) 262
(d) 272
(e) 268
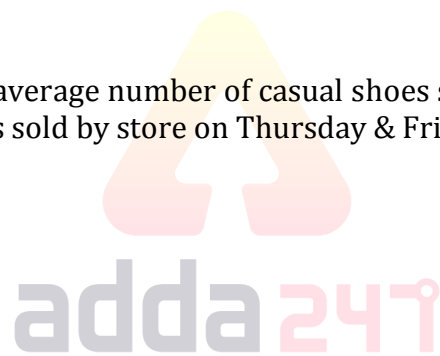
Q103. If total casual shoes sold by store on Sunday is 25% more than that sold on Thursday and total sport shoes sold on Sunday is 300% more than that sold on Friday, then find total number of casual & sport shoes sold by store on Sunday ?
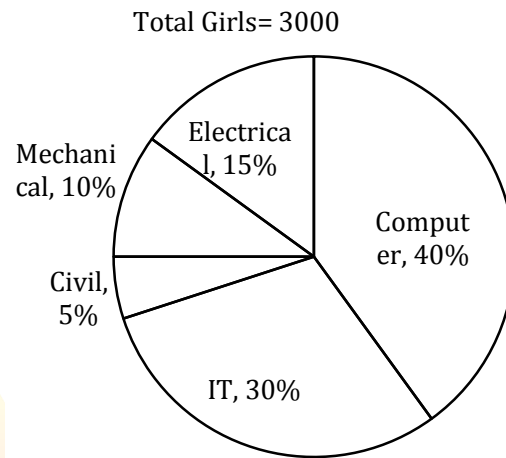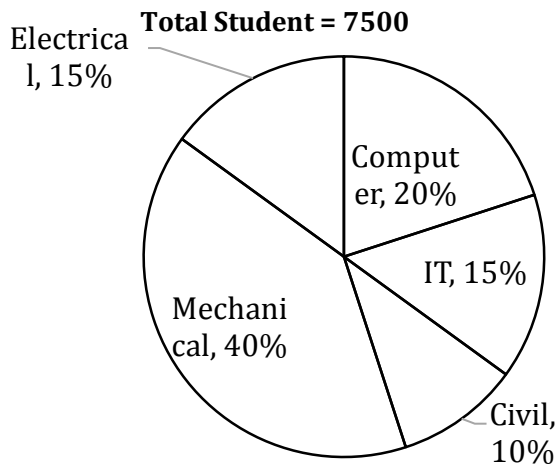(a) 1250
(b) 1150
(c) 1050
(d) 950
(e) 1350

Q104. Total sport shoes sold by store on Wednesday is what percent more than total sport shoes sold by store on Monday and Tuesday together?
(a) $26\frac{22}{49}\%$
(b) $24\frac{22}{49}\%$
(c) $22\frac{22}{49}\%$
(d) $21\frac{22}{49}\%$
(e) $18\frac{22}{49}\%$

Q105. Find the ratio between total shoes sold by store on Monday to total shoes sold by store on Thursday?
(a) 1 : 5
(b) 1 : 3
(c) 1 : 7
(d) 1: 4
(e) 1 : 2

Directions (106-110): Given below are the 2 pie-chart. Pie chart I shows the percentage distribution of all students in different department of a collegePie Chart 2 shows the percentage distribution of Girls in different department of the same college.

Total Student = 7500
Electrical, 15%
Computer, 20%
IT, 15%
Mechanical, 40%
Civil, 10%

Total Girls= 3000
Mechanical, 10%
Electrical, 15%
Civil, 5%
Computer, 40%
IT, 30%

Q106. Find the ratio of male students in computer and IT department together to male students in civil and electrical department together.
(a) 7 : 3
(b) 7 : 17
(c) 7 : 23
(d) 29 : 11
(e) 3 : 17

Q107. Boys studying in Civil are how much percent more/less than Girls studying in same department.
(a) 300%
(b) 225%
(c) 140%
(d) 180%
(e) 125%

Q108. Find the average of boys studying in computer, Electrical and Civil department together?
(a) 385
(b) 525
(c) 448
(d) 568
(e) 552

**Q109.** Find the difference of boys studying in mechanical department and boys studying in Civil department?
(a) 2370
(b) 1550
(c) 2760
(d) 2100
(e) 2700

Q110. Boys studying in computer and IT department together are what percent of total students in these department?
(a) 17%
(b) $28\frac{1}{3}\%$
(c) 20%
(d) 46%
(e) 25%

Directions (111-115): Study the bar-graph carefully & answer the question.
Bar- Graph given below shows the percentage of males out of total persons who visits park in six different cities.
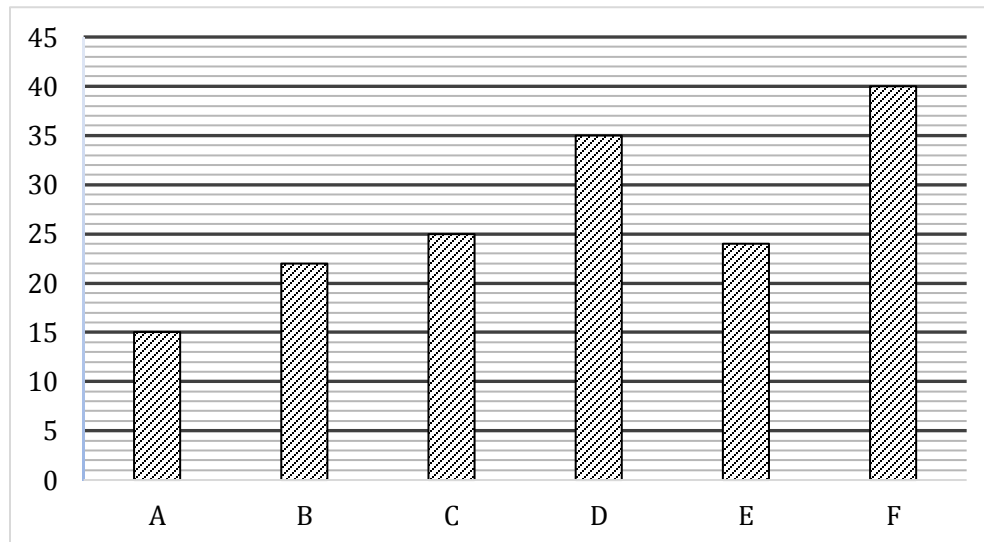
Q11. If total population visiting park in city C is 75,000 then find total female who visitor park in city C?
(a) 44,000
(b) 62,480
(c) 48,500
(d) 56,250
(e) 52,800

Q112. If ratio of total male population visiting park in city C to E is 2 : 3 then total population visiting park in city E is what percent of total population visiting park in city C?
(a) 120%
(b) $240\frac{1}{3}\%$
(c) $156\frac{1}{4}\%$
(d) 180%
(e) $152\frac{1}{2}\%$

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Q113. If total population in city F is 21000 of which 60% are visiting park. Then total male population visiting park in city F is how much more/less than total population in city A visiting park. Total population visiting park in city A is 50% more than total population visiting park in city F?
(a) 12,480
(b) 16,550
(c) 13,860
(d) 14,575
(e) 18,000

Q114. If males visiting park in city B is 4400 and males visiting park in city F is 50% of total males visiting park in city B then male park visitor in city B is what percent more/less than total park visitor in city F ?
(a) 20%
(b) 25%
(c) $42\frac{1}{2}$%
(d) 35%
(e) 47%

Q115. If total males visiting park in city E and A together is 39000 & males visiting park E is 60% more than A then find total females visiting park in city E.
(a) 120,000
(b) 76,000
(c) 132,000
(d) 144,000
(e) 84,830

(Q11-15) 16 june rrb quiz
Directions (116-120): The following graph gives the percentage of young people, middle-aged people and old people in the four regions of a state, as a percentage of the total population of the respective region.
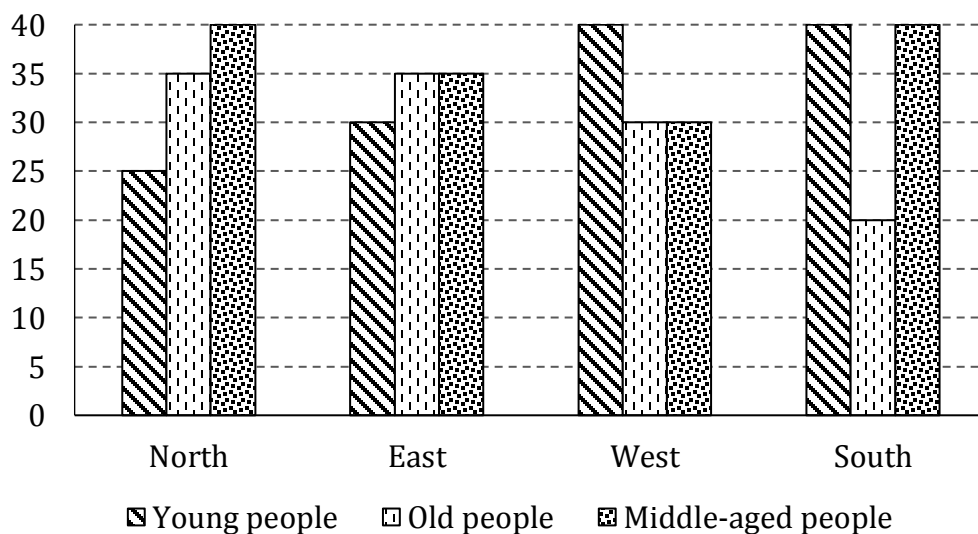
Note: The respective ratio of total population in North, East, West and South regions is 3 : 2 : 5 : 3.

Q116. What is the ratio of the total number of old people in East and West region to the total number of middle-aged people in North and South region.
(a) 3 : 4
(b) 10 : 11
(c) 11 : 12
(d) 5 : 6
(e) None of the above

Q117. If the total number of young people in South region is 13,500 . Then, find the difference between the number of middle-aged people and old people in the South region.
(a) 6,750
(b) 6,650
(c) 6,600
(d) 7,000
(e) 6,500

Q118. The average of old people in East and South region together is what percent less/more than the average of young people in East and middle-aged people in North region.
(a) $27\frac{5}{9}\%$
(b) $26\frac{7}{9}\%$
(c) $25\frac{7}{9}\%$
(d) $27\frac{7}{9}\%$
(e) None of the above

Q119. If total population of North region is 1,20,000 then find the total number of old-female in North and West region. If 60% of the old people in North are female and 40% of the old people in West are female.
(a) 48,200
(b) 47,200
(c) 49,000
(d) 50,000
(e) 49,200

Q120. Number of middle-aged people in East region are what percent of the number of young people in South region.
(a) $58\frac{1}{3}\%$
(b) $55\frac{2}{5}\%$
(c) $55\frac{2}{3}\%$
(d) $57\frac{1}{3}\%$
(e) $57\frac{2}{3}\%$

Directions (121-125): Study the given line graph carefully and answer the following questions.
Given graph shows the total number of males and females working in six different companies in year 2016

● No. of male employee   ■ No. of female employee
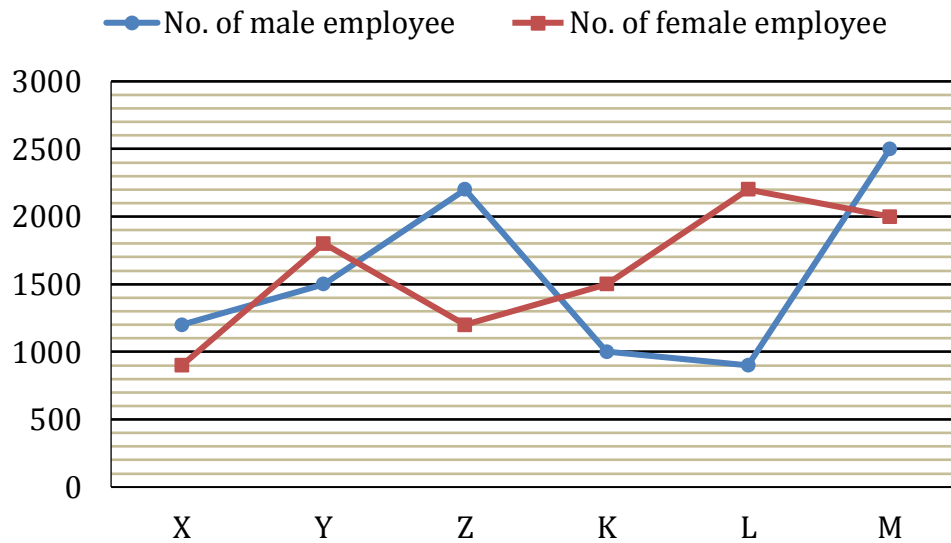
Q121. Average no. of female employees in company X, Y and K are how much more/less than average no. of male employees in company X, Y and L?
(a) 350
(b) 400
(c) 200
(d) 300
(e) 250

Q122. No. of female employees in company L is what percent of the total no. of employees in company K and L together?
(a) $48\frac{1}{3}\%$
(b) $28\frac{2}{7}\%$
(c) $31\frac{2}{3}\%$
(d) $39\frac{2}{7}\%$
(e) $45\frac{1}{7}\%$

Q123. If the no. of male employees in company Y and Z are increased by 10% and 20% respectively in year 2017 as compared to 2016 and no. of female employees in company Y and Z are decreased by 30% & 40% respectively in 2017 as compared to 2016. Then find ratio of total no. of employees in company Y to company Z in year 2017 ?
(a) 97 : 112
(b) 91 : 112
(c) 113 : 83
(d) 112 : 97
(e) 83 : 113

Q124. If 25% of the female employees in company L are illiterate and ratio of male literate to (male)illiterate in same company is 4 : 5 then find total illiterate employees in company L is what percent of the total employees of company K?
(a) 48%
(b) 52%
(c) 32%
(d) 36%
(e) 42%

Q125. If there is another company A in which no. of male employees are 40% of the total employees in company M and female employees are half of the total employees in company X then find total employees in company A?
(a) 2250
(b) 2850
(c) 3250
(d) 3600
(e) 2640

Direction (126-130): The following Pie chart shows the distribution of vacancies in six banks issued by IBPS. Study the data carefully and answer the following question.

Total Vacancies=3600
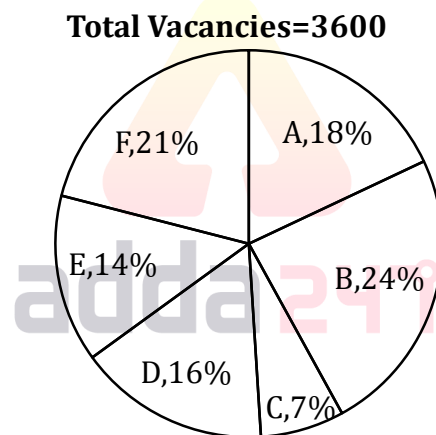
Q126. Vacancies in Bank 'B' is what percent more than average number of vacancies in Bank 'A' and 'E' together?
(a) 25%
(b) 50%
(c) 75%
(d) 100%
(e) 150%

Q127. Find the total number of vacancies in bank 'D' and 'F' together
(a) 1224
(b) 1260
(c) 1296
(d) 1332
(e) 1368

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Q128. In bank E, vacancies for female is 25% less then vacancies for male then find total number of vacancies for female in Bank 'E'?
(a) 288
(b) 144
(c) 224
(d) 280
(e) 216

Q129. Find the ratio between total number of vacancies in bank 'B' and 'D' together to total number of vacancies in bank 'E' and 'F' together?
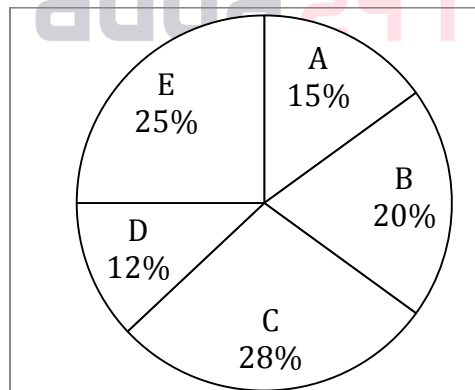(a) 8 : 7
(b) 4 : 7
(c) 6 : 7
(d) 9 : 7
(e) 12 : 7

Q130. Find the average number of vacancies in Bank 'C', 'E' and 'F' together?
(a) 495
(b) 498
(c) 501
(d) 504
(e) 507

Directions (131-135): Given below is the pie chart which shows the percentage distribution of 5 types of watches manufactured in company X in year 2017.
Ratio of total watches manufactured in company X in year 2017 to year 2018 is 7 : 8.

Q131. If difference between watches manufactured of type B and type C in year 2017 is 11,200 and type A watches manufactured in year 2018 is 20% more than type D watches manufactured in year 2017, then find the number of type A watches manufactured in year 2018
(a) 21,160
(b) 19,160
(c) 18,160
(d) 20,160
(e) none of these

Q132. If the average number of type D and type C watches manufactured in company X in 2017 is 16,100, then find the total number watches manufactured in company X in 2018.
(a) 92,000
(b) 90,000
(c) 88,000
(d) 96,000
(e) none of these

Q133. The number of type B watches manufactured in 2018 is 25,600 which is 25% of the total number of watches manufactured in 2018. Find the number type D and type B watches manufactured in 2017 in company X.
(a) 23,456
(b) 26,754
(c) 28,672
(d) 24,563
(e) none of these

Q134. What is the ratio of number of type E watches manufactured in 2017 to the number of type D watches manufactured in 2018 if the number of type D watches manufactured in 2018 is 30% of all the watches manufactured in 2018 ?
(a) $\frac{25}{38}$
(b) $\frac{35}{48}$
(c) $\frac{35}{78}$
(d) $\frac{15}{48}$
(e) none of these

Q135. If in 2018, the number of all type of watches except type B remained same as that of 2017, then find the percentage change in the number of watches of type B in 2018 compared to 2017.(in approximate) .
(a) 79%
(b) 51%
(c) 71%
(d) 62%
(e) 48%

Directions (136-140): study the given information carefully and answer the questions.
In a company, there are 3 companies laptop provided to its employee i.e. Dell, HP & Lenevo There are total 1000 employees. Some employees use single laptop while some uses more than it. 20 users uses all 3 companies laptop. 150 employees use more than one company's laptop. 200 employees use only Lenovo's laptop while 280 use only HP's laptop. 40% of total employees use HP's laptop & same no. of employees uses HP & Dell both & HP & Lenovo both.

Q136. How many employees are using both Dell & Lenovo together?
(a) 20
(b) 30
(c) 50
(d) 40
(e) 10

Q137. Employees using only Dell's laptop are what percent of employees using only Lenovo's laptop?

(a) 140%

(b) 150%

(c) 175%

(d) 165%

(e) *None of these*

Q138. What is the ratio of employees using both Dell & Lenovo laptops together to employees using all 3 companies laptops?

(a) 3:2

(b) 2:3

(c) 3:5

(d) 5:3

(e) 5:2

**Q139.** Employees using Dell are what percent more than employees using Lenovo?

(a) 40%

(b) 85%

(c) 33.33%

(d) 12.5%

(e) 56.67%

Q140. How many employees uses only one company's laptop?

(a) 860

(b) 870

(c) 850

(d) 830

(e) 840

Q141. A and B work for 5 days and complete 50% work and remaining work is done by C in 7.5 days. If efficiency of B is 37.5% less than the efficiency of C, then find the time taken by A alone to complete the work?

(a) $14\frac{2}{7}$ days

(b) $17\frac{1}{7}$ days

(c) $8\frac{1}{7}$ days

(d) $17\frac{6}{7}$ days
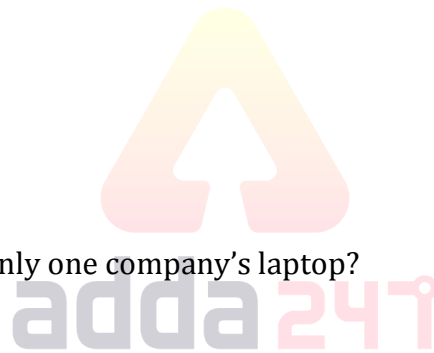
(e) $9\frac{1}{7}$ days

Q142. An amount is invested at Simple Interest for 2 years and after two years whole amount (Initial amount+Intrest) is invested at Compound Interest for 2 more years. If rate of interest is 10% for both simple and compound interest and total interest earned after 4 years is 1130Rs. then, find the initial amount invested?
(a) 2500
(b) 3000
(c) 1500
(d) 1880
(e) 2340

Q143. If a boat takes double time to cover a distance in upstream as compare to time taken by it to cover same distance in downstream, then speed of stream is what percent of the speed of boat in still water?
(a) 25%
(b) 50%
(c) $16\frac{2}{3}$%
(d) Cannot be determined.
(e) $33\frac{1}{3}$%

Q144. Two jar A and B contain a mixture of two liquids, X and Y in the ratio of 2 : 3 and 4 : 5 respectively. If mixture from jar A and B are mixed in the ratio of 1 : 2 then, find the ratio of X and Y in final mixture.
(a) 70:51
(b) 58:77
(c) 61:77
(d) 77:58
(e) 62:61
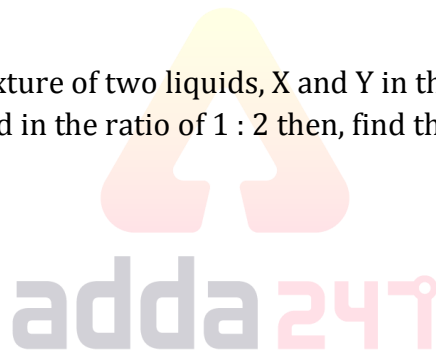
Q145. If simple interest on a certain sum of money for three years is Rs. 450 and the compound interest on the same sum at the same rate for 2 years is Rs. 309, then the principal invested in rupees is :
(a) Rs. 3000
(b) Rs. 1875
(c) Rs. 1500
(d) Rs. 2250
(e) Rs. 2500

Q146. Aman spends 18,000 partially in scheme 'A' which offers 15% pa at C.I. and remaining in scheme 'B' which offers 25% p.a. at C.I. After 2 year he earns Rs. 7725 as interest. Find amount invested on scheme 'B' is what percent less or more than the amount invested on scheme 'A'.
(a) 25%
(b) 20%
(c) 15%
(d) 50%
(e) 30%

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Q147. A, B and C enter into a partnership, A invest X+8000, B invest 2X+2000 and C invest 3X + 4000 for one year if B share is 4000 from total profit of 16000 then find the difference between investment of A and C.
(a) 4000
(b) 5000
(c) 6000
(d) 2000
(e) 7000

Q148. Yogesh, Deepak and Sanjay started a business with Rs 16000, Rs 12000 and Rs 8000 respectively. After a year if all three divide the profit equally then time given by Yogesh in business is what percent of the time given by Deepak in business?
(a) 25%
(b) $33\frac{1}{3}\%$
(c) 50%
(d) 75%
(e) $133\frac{1}{3}\%$

Q149. Aman invested (X –1000) in scheme 'A' which offer 30% p.a at CI and Rs. (X + 1000) in scheme 'B' which offers 20% p.a. at SI. If he earns Rs. 5160 as interest after 2 years, then find the amount invested by him in scheme 'B' ?
(a) 4,000
(b) 5,000
(c) 6,000
(d) 7,000
(e) 8,000

Q150. Ritu and Priya invested in the ratio 7 : 8 in a business .They got an annual profit of Rs 34450. If Ritu withdrew her entire amount at the end of 9 months. Then find the difference between their share in profit?
(a) Rs 6400
(b) Rs 8180
(c) Rs 7150
(d) Rs 6400
(e) Rs 7560

Q151. a, b, c and d are four consecutive even numbers, if the sum of 'a' and 'c' is 120, what is the product of 'b' and 'd'?
(a) 4030
(b) 3780
(c) 3900
(d) 3900
(e) 3840

Q152. Three numbers are given. The average of first and third numbers is 24 more than that of average of second and third numbers. Find out the difference between the first and second numbers.
(a) 36
(b) 40
(c) 42
(d) 48
(e) 46

Q153. In an election between P and Q , if $\frac{2}{5}$ th of the total voters promised to vote for P and rest promised to vote for Q. On the voting day 25% of the voters went back on their promise to vote for P & 30% of the voters went back on their promise to vote for Q. Find the total no. of voters, if Q wins by 400 votes.
(a) 8000
(b) 10000
(c) 15000
(d) 5000
(e) 12000

Q154. The sum of digits of a two-digit number is 12 and the difference between the two-digits of the two-digit number is 6. What is the two-digit number?
(a) 39
(b) 28
(c) 93
(d) 75
(e) Either (a) or (c)

Q155. $\frac{2}{3}$rd of first number is equal to the cube of the second number. If the second number is equal to 12% of 100, what is sum of the first & 2nd number?
(a) 2408
(b) 2640
(c) 2426
(d) 2604
(e) 2804

Q156. If income & saving ratio of a person is 25 : 9. If saving increases $\frac{1}{3}$rd & expenditure increases by 25% & income increases by Rs. 2100. Then find the initial saving?
(a) Rs. 3200
(b) Rs. 3500
(c) Rs. 5600
(d) Rs. 2700
(e) Rs. 4200

Q157. Sum of four consecutive even numbers is 49 more than sum of three consecutive odd numbers and the sum of lowest odd and lowest even number is 23. Find the largest even number.
(a) 28
(b) 36
(c) 18
(d) 32
(e) 22

Q158. The probability of selection of three candidates A, B and C in an organization is $\frac{2}{5}$, $\frac{5}{6}$ and $\frac{4}{7}$ respectively. Find the probability that at least one of them get selected.

(a) $\frac{107}{210}$

(b) $\frac{97}{210}$

(c) $\frac{67}{70}$

(d) $\frac{63}{70}$

Q159. A bus covers a distance A to B in three equal parts. In first part its speed is 60 km/hr in 2nd 40 km/hr and in Last 50 km/hr. At the time when Bus started from point A, a car also started from B and meet the bus after 4 hours in which car covered $\frac{400}{9}$ % distance. Find the speed of car?

(a) 40 km/h

(b) 50 km/h

(c) 60 km/h

(d) 120 km/h

(e) 30 km/h

Q160. In how many ways a committee of 5 member can be formed from 6 men and 7 women in which at least 3 men should come?

(a) 431

(b) 520

(c) 720

(d) 531

(e) 640

Q161. Ratio of P's age 4 years hence to Q's age 2 years ago is 4 : 5 and average of their age 3 years ago is 23 years. Age of P five year hence will be?

(a) 25 years

(b) 29 years

(c) 23 years

(d) 33 years

(e) 20 years

Q162. In a mixture of water and alcohol, ratio (water : alcohol) is 8 : 5. When 4 litres of water is added in the mixture, the ratio (alcohol : water) becomes 5 : 9. Find the quantity of initial mixture ?

(a) 39 lit

(b) 104 lit

(c) 52 lit

(d) 78 lit

(e) 91 lit

Q163. A mixture of 30 litres contains alcohol and water in ratio 3 : 7. How much alcohol must be added to this mixture so that the ratio of alcohol and water becomes 2 : 3 ?

(a) 5 ltr.

(b) 6ltr.

(c) 7 ltr.

(d) 4 ltr.

(e) None of these

Q164. Ratio of Ayush's age 1 year later and Veer's age 5 years ago is 1 : 1 and average of their ages 6 years later will be 33 years then find ratio of present age of Veer to Ayush?
(a) 8 : 7
(b) 4 : 3
(c) 3 : 2
(d) 5 : 4
(e) 5 : 3

Q165. Present age of two friends, Veer and Rohit is in the ratio of 7 : 5. Arun is 10 years elder than Rohit. 10 years ago ratio of age of Veer and Arun is 16 : 15. Find the present age of Rohit. (a) 42 years
(b) 40 years
(c) 30 years
(d) 20 years
(e) 28 years

Q166. A container contains 75 liters of milk from this container 15 liter milk taken out and replaced with water. This process is repeated one more time. Find the quantity of milk in container.
(a) 36 liters
(b) 45 liters
(c) 27 liters
(d) 48 liters
(e) 32 liters

Q167. A mixture 120 l contains milk & water in the ratio 5 : 7. 48 l of mixture taken out and some amount of milk & water added in remaining mixture which is in the ratio 1 : 3. If new ratio of milk & water in resulting mixture is 3 : 5, then find amount of water added in resulting mixture?
(a) 6 l
(b) 18 l
(c) 24 l
(d) 28 l
(e) 22 l

Q168. A trader wants to earn $16\frac{2}{3}$% profit after allowing a discount of 25% find by how much percent he has to increase his cost price to make it marked price?(approximate)
(a) 50%
(b) 56%
(c) 40%
(d) 52%
(e) 46%

Q169. Out of 12 applications for a job, there are 5 women and 7 men. It is desired to select 2 persons for the job. The probability that at least one of the selected persons will be a women is?
(a) $\frac{13}{66}$
(b) $\frac{15}{22}$
(c) $\frac{7}{11}$
(d) $\frac{11}{20}$
(e) $\frac{7}{22}$

Q170. Three partners A, B and C invested their amounts in ratio of 2 : 5 : 7. At the end of 6 months, 'A' added some more amount such that his investment become equals to half of sum of 'B' and 'C' initial investment. If at the end of the year, B's share in profit is Rs 4250, then find the total profit?
(a) Rs 12500
(b) Rs 13600
(c) Rs 18400
(d) Rs 10500
(e) Rs 14500

Q171. Perimeter of a square is equal to perimeter of a rectangle, if area of square is 729 sq.cm and length of rectangle is 100% more than that of breadth, then find the area of rectangle? (in cm sq.)
(a) 792
(b) 728
(c) 684
(d) 648
(e) 582

Q172. A positive integer is selected at random and is divided by 11. Find the probability that the remainder is not an even number?
(a) $\frac{3}{11}$
(b) $\frac{8}{11}$
(c) $\frac{5}{11}$
(d) $\frac{9}{11}$
(e) $\frac{7}{11}$

Q173. Find number of ways in which words can be formed using 'RECOGNITION' such that two 'O' and two 'N' always come together?
(a) 362885 ways
(b) 144885 ways
(c) 191345 ways
(d) 182485 ways
(e) 181440 ways

Q174. Ritu and Anu together can do a work in 16 days where as Anu alone can do it in 24 days. If Neha alone can do the same work in 30 days, then find the ratio of efficiency of Neha to efficiency of Ritu?
(a) 5 : 8
(b) 8 : 5
(c) 5 : 3
(d) 2 : 3
(e) 7 : 8

Q175. A shopkeeper have 800 kg of Sugar, a part of which he sells at 10% profit and remaining at 15% loss thus, he incurred overall loss of 5.625%. What would be the profit/loss percentage, if he interchanges the quantity he sold initially.
(a) 1.5%
(b) 0.375%
(c) 1.125%
(d) 2.125%
(e) 0.625%

(Q1, 4, 6, 8) 28 june rrb quiz
Q176. If ratio between total surface area of cylinder to its curved surface area is 4 : 3 then radius of cylinder is what percent less then height of cylinder?
(a) $33\frac{1}{3}\%$
(b) 50%
(c) $66\frac{2}{3}\%$
(d) 75%
(e) $83\frac{1}{3}\%$

Q177. Ratio between length and breadth of a rectangle is 3 : 2 and the area of rectangle is 486 cm². If breadth of rectangle is 4 cm more than radius of a cone and length of rectangle is 9 cm more than height of the cone, then find the volume of cone?
(a) $3996 cm^3$
(b) $4096 cm^3$
(c) $3896 cm^3$
(d) $3696 cm^3$
(e) $3998 cm^3$
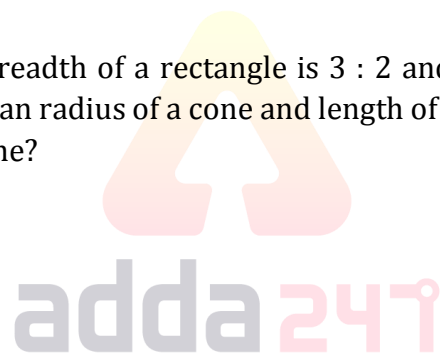
Q178. The radius of a semicircle is equal to the radius of a sphere whose surface area is 616 cm² and height of a cylinder is 150% more than radius of semicircle and ratio of height to radius of cylinder is 5 : 1. Then find radius of cylinder? (in cm³)
(a) 14
(b) 7.5
(c) 3
(d) 3.5
(e) 5.5

Q179. The radius of a cylinder & a sphere is same and ratio of height and radius of cylinder is 2 : 1.If the volume of sphere is 288 π cm³ then find the volume of cylinder? (in cm³)
(a) 438 π
(b) 426 π
(c) 420 π
(d) 432 π
(e) 444 π

Q180. Ratio between time taken to cover same distance in upstream to downstream is 2 : 1. If speed of stream is 4 km/hr then find time taken to cover 48km in upstream?
(a) 8 hours
(b) 4 hours
(c) 6 hours
(d) 3 hours
(e) 1.5 hours

Q181. A tank is attached by 8 taps some of which is outlet some are inlet. Efficiency of all outlet pipe and inlet pipes are same. Time taken by an outlet pipe to empty the tank is double of the time taken by the pipes (8 pipes) to fill the tank. How many pipes are outlet ?
(a) 5
(b) 2
(c) 3
(d) 4
(e) 6

Q182. Two runners starting running simultaneously from opposite end of a bridge. But slower runner takes 5 sec more than faster runner to cross the bridge. If speed of faster runner is double to the slower one. Then find the time taken by slow runner to cross the bridge.
(a) 10 sec
(b) 5 sec
(c) 15 sec
(d) 20 sec
(e) 12.5 sec
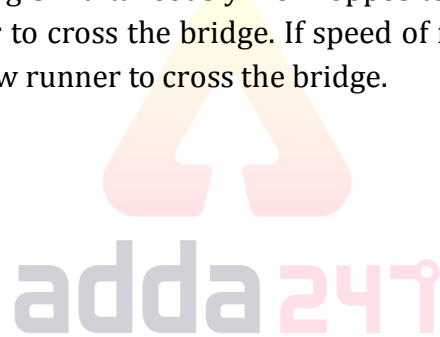
Q183. A boat cover 27 km in upstream in same time as it cover 36 km in downstream. Speed of stream is what percent of the speed of boat in upstream.
(a) $14\frac{2}{7}\%$
(b) $33\ \square\%$
(c) $15\ \square\%$
(d) 75%
(e) $16\ \square\%$

Q184. A and B worked for 20 days and 15 days on a work respectively. The ratio of total wages earned by them is 5 : 4. What is the ratio of their respective efficiency if they work with same efficiency throughout the work.
(a) 5 : 6
(b) 12 : 13
(c) 15 : 16
(d) 16 : 15
(e) 17 : 15

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Q185. Aman can finish a job in 20 days. Rahul and Satish can finish the same job in 10 days. If ratio of efficiency of Rahul and Satish is 1:3 respectively, then find the time taken by all three to complete the job working together.

(a) $6\frac{2}{3}$ days

(b) 5 days

(c) $5\frac{2}{3}$ days

(d) $7\frac{2}{3}$ days

(e) 6 days

Q186. Bhavya can swim 24 km upstream and 36 km downstream in 9 hours. If the difference between upstream speed and downstream speed of Bhavya is 8 km/hr, then find the speed of Bhavya in still water.

(a) 6 km/hr

(b) 9 km/hr

(c) 10 km/hr

(d) 8 km/hr

(e) 7 km/hr

Q187. Roni purchased a cycle for Rs. 12000 and sold it at a loss of 20% with that amount he purchased another cycle and sold it at 30% profit. What was his overall gain/loss?

(a) 720 loss

(b) 480 loss

(c) 480 profit

(d) 720 profit

(e) No profit no loss

Q188. If a train running at the speed of 108 km/hr crossed a 240 meters long platform in 14 sec. then find time taken by train to cross a 320 meters long goods train, which is running at the speed of 144km /hr in opposite direction?

(a) $7\frac{1}{7} sec$

(b) $5\frac{1}{7} sec$

(c) $9\frac{1}{7} Sec$

(d) $11\frac{1}{7} sec$

(e) $13\frac{1}{7} sec$

Q189. Speed of Abhishek is $\frac{3}{4}$ th of speed of Roly . Abhishek takes 60 min. more than Roly to cover a distance of 48 km. If speed of Rahul is 250% more than speed of Abhishek, then find in what time Rahul will cover a distance of 840 km?

(a) 28 hr

(b) 24 hr

(c) 20 hr

(d) 16 hr

(e) 22 hr

Q190. A boat can cover 40 km upstream and 60 km downstream in 13 hour. Also it can cover 50 km upstream and 72 km downstream in 16 hour. Find the speed of boat in still water?
(a) 7.5 kmph
(b) 4.5 kmph
(c) 8.5 kmph
(d) 6.5 kmph
(e) 5.5 kmph

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: Sum of the first and second number. $\frac{2}{3}$rd of first number is equal to the cube of the second number and second number is equal to 12% of 100
Quantity II: 2352

Q192. Quantity I: Time taken by the police to catch the thief.
A thief robbed a shop and ran in a car at a speed of 60 km/h at 11:00 am. The Police located the position of thief and ran after him at 11:15 a.m. from shop in a car. Maximum speed of the car of police is 65 km/h
Quantity II: 3hr

Q193. Quantity I: 4
Quantity II: Value of 'x'
A, B and C started a business together with Rs 12,000, Rs 12,000 and Rs 8,000 respectively. B worked only for 'x' months while C left the business 'x' month before the completion of year. If out of annual profit of Rs 3200, 'A' got Rs 1800.

Q194. Quantity I: Value of 'X'
The time taken by a boat for covering 'X – 18' km upstream is equal to time taken by it for covering 'X' km downstream. If upstream speed is 6 km/hr less than downstream speed and speed of boat in still water in 15 kmph.
Quantity II: 50

Q195. Quantity I: Price at which P sold watch to Q
'P' sells his watch at 20% profit to Q while Q sells it to R at a loss of 10%. R pays Rs.2160.
Quantity II: 1600

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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. How many marks did Neeraj obtain in Mathematics?

(I) Neeraj obtained an average of 65% marks in Mathematics, English and Social science.

(II) Neeraj secured 10% marks more in Mathematics than the average of Mathematics, English and Social Science.

Q197. There are four consecutive even number what is the value of smallest number among these?

(I) The average of the four consecutive even number is the first prime number greater than 8.

(II) The difference between the largest and the smallest of the number is less than 10.

Q198. A sum of Rs. 705 is distributed among three persons P, Q and R. Who gets the least?

(I) P gets ⅔rd of what (Q + R) are getting.

(II) Q gets ¼th of what (P + R) are getting.

Direction (199-200): Given below in each question there are two statements (I) and (II). You have to determine, which statement is sufficient to give the answer of question. Also there are five alternatives given, you have choose one alternative as your answer of the questions:

Q199. What is length of rectangle?

I. Ratio between radius & height of cylinder is 7 : 6 and breadth of rectangle is equal to height of cylinder. Volume of cylinder is 7392 cm³ and perimeter of rectangle is 80 cm.

II. Length of rectangle is two times of side of square, of area 196 cm².

(a) Only statement I is sufficient

(b) Only statement II is sufficient

(c) Statement I and II both together are required

(d) Either statement I or Statement II alone sufficient

(e) Neither statement I or statement II sufficient

Q200. A bag contains seven red, 'y' blue & 'x' yellow balls. How many total blue & yellow balls together?

I. One ball is drawn from bag, probability of being that ball blue is $\frac{1}{4}$.

II. One ball is drawn from bag, probability of being that ball yellow is $\frac{2}{5}$.

(a) Only statement I is sufficient

(b) Only statement II is sufficient

(c) Statement I and II both together sufficient

(d) Either statement I or Statement II alone sufficient

(e) Neither statement I or statement II sufficient

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S1. Ans.(a)
Sol.
I. $3x^2 + 17x + 10 = 0$
$\Rightarrow 3x^2 + 15x + 2x + 10 = 0$
$\Rightarrow 3x(x + 5) + 2(x + 5) = 0$
$\Rightarrow (3x + 2)(x + 5) = 0$
$\Rightarrow x = -5, \left(-\dfrac{2}{3}\right)$
II. $10y^2 + 9y + 2 = 0$
$\Rightarrow 10y^2 + 5y + 4y + 2 = 0$
$\Rightarrow 5y(2y + 1) + 2(2y + 1) = 0$
$\Rightarrow (5y + 2)(2y + 1) = 0$
$\Rightarrow y = \dfrac{-2}{5}, -\dfrac{1}{2}$
$\therefore x < y$

S2. Ans.(a)
Sol.
I. $4x^2 = 49$
$\therefore \quad x = \pm\dfrac{7}{2}$
II. $9y^2 - 66y + 121 = 0$
$9y^2 - 33y - 33y + 121 = 0$
$y = \dfrac{11}{3}, \dfrac{11}{3}$
$y > x$

S3. Ans.(b)
Sol.
I. $3x^2 + 3x + 2x + 2 = 0$
$\Rightarrow 3x(x + 1) + 2(x + 1) = 0$
$\Rightarrow x = -1, \dfrac{-2}{3}$

II. $y^2 + 9y + 3y + 27 = 0$
$\Rightarrow y(y + 9) + 3(y + 9) = 0$
$\Rightarrow y = -3, -9$

$\therefore x > y$

S4. Ans.(c)
Sol.
I. $x^2 - 5x - 2x + 10 = 0$
$\Rightarrow x(x - 5) - 2(x - 5) = 0$
$\Rightarrow x = 2, 5$

II. $y^2 - 9y - 5y + 45 = 0$

$\Rightarrow y(y-9) - 5(y-9) = 0$

$\Rightarrow y = 9, 5$

$\therefore x \leq y$

S5. Ans.(b)

Sol. I. $6x^2 - 49x + 99 = 0$

Or, $6x^2 - 27x - 22x + 99 = 0$

Or, $3x(2x - 9) - 11(2x - 9) = 0$

Or, $(3x - 11)(2x - 9) = 0$

$\therefore x = \frac{11}{3}, \frac{9}{2}$

II. $5y^2 + 17y + 14 = 0$

$or, 5y^2 + 10y + 7y + 14 = 0$

$or, 5y(y + 2) + 7(y + 2) = 0$

$or, (5y + 7)(y + 2) = 0$

$\therefore y = -2, -\frac{7}{5}$

Hence, x > y

S6. Ans.(d)

Sol. I. $6x^2 + 13x + 6 = 0$

$\Rightarrow 6x^2 + 9x + 4x + 6 = 0$

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

$\Rightarrow x = \frac{-2}{3} \ or \ \frac{-3}{2}$

II. $2y^2 + 7y + 6 = 0$

$\Rightarrow 2y^2 + 4y + 3y + 6 = 0$

$\Rightarrow 2y(y + 2) + 3(y + 2) = 0$

$\Rightarrow (2y + 3)(y + 2) = 0$

$\Rightarrow y = \frac{-3}{2} \ or -2$

$\therefore x \geq y$

S7. Ans.(a)

Sol. I. $\frac{x}{3} + 1 = \frac{7}{15}$

$\Rightarrow \frac{x}{3} = \frac{-8}{15}$

$\Rightarrow x = \frac{-8}{5}$

II. $5(y - 2) + 18 = 0$

$\Rightarrow 5y - 10 = -18$

$\Rightarrow 5y = -8$

$y = \frac{-8}{5}$

$\therefore x = y$

S8. Ans.(e)
Sol. I. $4x^2 + 16x + 15 = 0$
$\Rightarrow 4x^2 + 10x + 6x + 15 = 0$
$\Rightarrow 2x(2x + 5) + 3(2x + 5) = 0$
$\Rightarrow$ x $= \frac{-5}{2}$ $or \frac{-3}{2}$
II. $2y^2 + 5y + 3 = 0$
$\Rightarrow 2y^2 + 3y + 2y + 3 = 0$
$\Rightarrow y(2y + 3) + 1(2y + 3) = 0$
$\Rightarrow$ y $= -1$ or $\frac{-3}{2}$
$y \geq x$

S9. Ans.(b)
Sol. $12x^2 - 17x + 6 = 0$
$\Rightarrow 12x^2 - 9x - 8x + 6 = 0$
$\Rightarrow 3x(4x - 3) - 2(4x - 3) = 0$
$\Rightarrow x = \frac{3}{4}$ $or \frac{2}{3}$
II. $35y^2 - 29y + 6 = 0$
$\Rightarrow 35y^2 - 15y - 14y + 6 = 0$
$\Rightarrow 5y(7y - 3) - 2(7y - 3) = 0$
$\Rightarrow y = \frac{3}{7}$ $or \frac{2}{5}$
$\therefore$ x > y

S10. Ans.(a)
Sol. I. $x(4x - 9) = 9(16 - x)$
$\Rightarrow 4x^2 - 9x = 144 - 9x$
$\Rightarrow x^2 = \frac{144}{4}$
$\Rightarrow$ x $= \pm 6$
II. $4y^2 + 20y + 25 = 0$
$\Rightarrow 4y^2 + 10y + 10y + 25 = 0$
$\Rightarrow 2y(2y + 5) + 5(2y + 5) = 0$
$\Rightarrow y = \frac{-5}{2}$
$\therefore$ relationship can't be established.

S11. Ans.(d)
Sol. I. $5x^2 - 19x + 12 = 0$
$or, 5x^2 - 15x - 4x + 12 = 0$
$or, 5x(x - 3) - 4(x - 3) = 0$
$or, (5x - 4)(x - 3) = 0$
$\therefore x = 3, \frac{4}{5}$
II. $5y^2 + 11y - 12 = 0$
$or, 5y^2 + 15y - 4y - 12 = 0$
$or, 5y(y + 3) - 4(y + 3) = 0$
$or, (5y - 4)(y + 3) = 0$
$\therefore y = \frac{4}{5}, -3$
Hence, $x \geq$ y

S12. Ans.(a)
Sol. I. $x^2 = \sqrt[3]{1331} = 11$
$\therefore x = \pm\sqrt{11} = \pm 3.316$
II. $2y^2 - 21y + 55 = 0$
Or, $2y^2 - 10y - 11y + 55 = 0$
Or, $2y(y-5) - 11(y-5) = 0$
Or, $(2y-11)(y-5) = 0$
$\therefore$ y = 5, $\frac{11}{2}$ $\therefore$ Hence, x < y

S13. Ans.(c)
Sol. I. $2x^2 - 8x - 3x + 12 = 0$
$or, 2x(x-4) - 3(x-4) = 0$
$or, (2x-3)(x-4) = 0$
$\therefore = \frac{3}{2}, 4$
II. $2y^2 - 8y - 9y + 36 = 0$
$or, 2y(y-4) - 9(y-4) = 0$
$or, (2y-9)(y-4) = 0$
$\therefore y = 4, \frac{9}{2}$ Hence, x $\leq$ y

S14. Ans.(e)
Sol. I. $2x^2 + 16x + 30 = 0$
$2x^2 + 10x + 6x + 30 = 0$
$2x(x+5) + 6(x+5) = 0$
X = $-$ 3, $-$ 5
II. $y^2 + 5y + 3y + 15 = 0$
$y(y+5) + 3(y+5) = 0$
Y = $-$ 3, $-$ 5
    X=Y

S15. Ans.(b)
Sol. I. $13x^2 - 106x + 160 = 0$
$13x^2 - 80x - 26x + 160 = 0$
$x(13x-80) - 2(13x-80) = 0$
X = 2, $\frac{80}{13}$
II. $6y^2 + 19y + 15 = 0$
$6y^2 + 10y + 9y + 15 = 0$
$2y(3y+5) + 3(3y+5) = 0$
Y = $-\frac{3}{2}, -\frac{5}{3}$
$x > y$

S16. Ans.(b)

Sol. $\frac{?}{20} = \sqrt{42^2 - 24 \times 48 - 24^2}$

$\Rightarrow \frac{?}{20} = \sqrt{1764 - 1152 - 576}$

$\Rightarrow \frac{?}{20} = \sqrt{36}$

$\Rightarrow \frac{?}{20} = 6 \Rightarrow ? = 120$

S17. Ans.(e)

Sol. 25% of $? = \sqrt{2704} + \frac{576}{18} - (64)^{1/3}$

$\Rightarrow \frac{?}{4} = 52 + 32 - 4$

$\Rightarrow ? = 4 \times (80) = 320$

S18. Ans.(a)

Sol. $?^2 = \sqrt{55\% \ of \ 960 + 75\% \times 640 + 2 \times 12^2}$

$\Rightarrow ?^2 = \sqrt{528 + 480 + 2 \times 144}$

$\Rightarrow ?^2 = \sqrt{1008 + 288}$

$\Rightarrow ?^2 = \sqrt{1296}$

$\Rightarrow ?^2 = 36$

$\Rightarrow ? = 6$

S19. Ans.(b)

Sol. $2^? = \frac{256}{16} \times \frac{2048}{64} \times \frac{1}{128} = 4$

$\Rightarrow ? = 2$

S20. Ans.(d)

Sol. $\frac{55}{100} \times ? = 45 \times 12 - 36 \times 14 + \frac{8}{100} \times 375$

$\Rightarrow \frac{11}{20} \times ? = 540 - 504 + 30$

$\Rightarrow ? = \frac{66}{11} \times 20 = 120$

S21. Ans.(a)

Sol.

$220 + 340 + ? = \frac{1}{18} \times 2700 + 400$

$? = 150 + 400 - 220 - 340$

$? = -10$

S22. Ans.(c)

Sol.

$\frac{28}{252} \times \frac{9}{22} \times \frac{11}{3} \times ? = (10)^2$

$? = \frac{100 \times 3 \times 22 \times 252}{28 \times 9 \times 11}$

$? = 600$

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S23. Ans.(e)
Sol.
? = (1728) ÷ (144)
? = 12

S24. Ans.(a)
Sol.
$? = \sqrt{1714 + 260 - 950}$
$? = \sqrt{1024} = 32$

S25. Ans.(c)
Sol.
$(5^2)^{2.7} \times 5^{4.2} \div 5^{6.4} = (5^2)^?$
$\Rightarrow \frac{5^{5.4} \times 5^{4.2}}{5^{6.4}} = 5^{2 \times ?}$
$\Rightarrow 5^{5.4 + 4.2 - 6.4} = 5^{2 \times ?}$
$\Rightarrow 5^{3.2} = 5^{2 \times ?}$
$\Rightarrow 2 \times ? = 3.2$
$\Rightarrow ? = \frac{3.2}{2} = 1.6$

S26. Ans.(d)
Sol.
$? = \frac{\sqrt{400} \times 42}{7}$
$= 20 \times 6 = 120$

S27. Ans.(d)
Sol.
$\frac{?}{5} = \frac{60 - 40}{2}$
$\Rightarrow ? = 5 \times 10$
$= 50$

S28. Ans.(c)
Sol.
$\sqrt{?} = \frac{621}{27} \times 2 - 37$
$= 46 - 37 = 9$
$\Rightarrow ? = 9 \times 9 = 81$

S29. Ans.(d)
Sol.
$\frac{250 \times 36}{100} \times \frac{50 \times 18}{100} = ? + 10$
$\Rightarrow 810 = ? + 10$
$\therefore ? = 810 - 10 = 800$

S30. Ans.(b)
Sol.

$\frac{49-36}{26} = \frac{18}{?}$

$\Rightarrow \frac{13}{26} = \frac{18}{?}$

$\Rightarrow \frac{1}{2} = \frac{18}{?}$

$\Rightarrow ? = 2 \times 18$

$= 36$

S31. Ans.(c)
Sol.
$3.5 \times 18 - (?)^2 = 36 + 2$
$63 - 38 = (?)^2$
$25 = (?)^2$
$? = 5$

S32. Ans.(b)
Sol.

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

$? = 2.5$

S33. Ans.(b)
Sol.

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

$? = 12.5$

S34. Ans.(c)
Sol.
$(390 + 310 - 225)\ 4 = ?$
$(700 - 225)\ 4 = ?$
$475 \times 4 = ?$
$? = 1900$

S35. Ans.(e)
Sol.
$9 \times 25 + 1225 + 150 = (?)^2$
$225 + 1225 + 150 = (?)^2$
$? = \sqrt{1600}$
$? = 40$

S36. Ans.(a)
Sol.
$(?)^2 = 24 + 31 + 729$
$(?)^2 = 784$
$(?)^2 = (28)^2$
$? = 28$

S37. Ans.(a)
Sol.

$\frac{1250}{25} - \frac{180}{6} = ?$

$50 - 30 = ?$

$? = 20$

S38. Ans.(b)
Sol.

$\sqrt{?} \times 12 = 132$

$\sqrt{?} \times 11$

$? = 121$

S39. Ans.(e)
Sol.

$(3)^? \times 6 = 2136 - 1974 + 81 + 1215$

$(3)^? = \frac{1458}{6} = 243$

$(3)^? = (3)^5$

$? = 5$

S40. Ans.(c)
Sol.

$? = 1718 - 1220 + 31 - 219 = 310$

S41. Ans.(d)
Sol.

84   97   114   133   156   185

+13   +17   +19   +23   +29

∴ 187 is wrong

Right no. = 156 + 29 = 185

13, 17, 19, 23, 29 are prime numbers

S42. Ans.(e)
Sol.

Pattern is

121   170   251   372   541   766

+49   +81   +121   +169   +225

7^2 9^2 11^2 13^2 15^2

Wrong No. = 543

Right no. = 372 + 169 = 541

S43. Ans.(a)
Sol.
Pattern is

210	70	280	56	336	48
÷3	×4	÷5	×6	÷7	
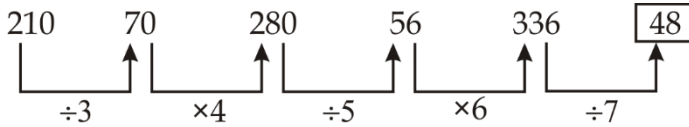
Wrong no. = 49
Right no. = 336 ÷ 7 = 48

S44. Ans.(a)
Sol.
Pattern is

19	140	259	376	491	604
+121	+119	+117	+115	+113	

Wrong no = 490
Right no = 376 + 115 = 491

S45. Ans.(a)
Sol.
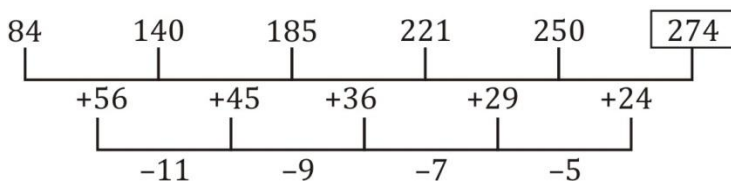Pattern is
21 × 1 + 2 = 23
23 × 2 + 3 = 49
49 × 3 + 4 = 151
151 × 4 + 5 = 609
609 × 5 + 6 = 3051
Wrong no = 3053
Right no = 609 × 5 + 6 = 3051

S46. Ans.(b)
Sol. Wrong number = 276
Pattern of series —

84	140	185	221	250	274
+56	+45	+36	+29	+24	
	−11	−9	−7	−5	

Should be 274 in the place of 276

S47. Ans.(d)
Sol. Wrong number = 173
Pattern of series —

81	225	153	189	171	181
+144	−72	+36	−18	+9	
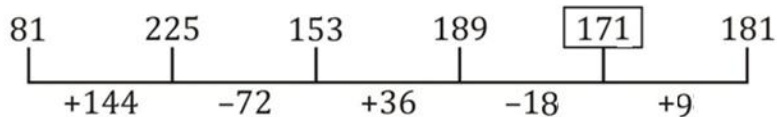
S48. Ans.(d)
Sol. Wrong number = 343

328   352   337   345   342 $\boxed{342}$

$+(5^2-1)$ $-(4^2-1)$ $+(3^2-1)$ $-(2^2-1)$ $+(1^2-1)$
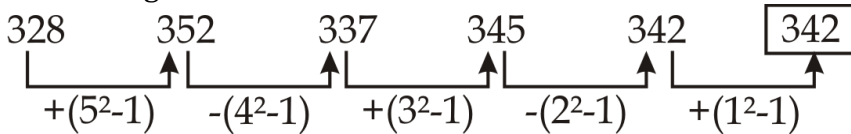
S49. Ans.(b)
Sol.
Wrong number = 285
Pattern of series —

190   195   203   217   243 $\boxed{293}$ 381

$+5$ $+8$ $+14$ $+26$ $+50$ $+88$

$+3$ $+6$ $+12$ $+24$ $+48$
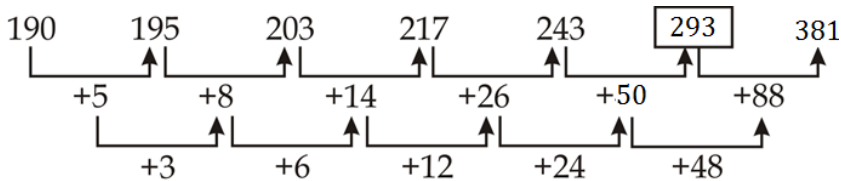
S50. Ans.(c)
Sol.
Pattern of series —

64   32   48   120   420 $\boxed{1890}$

$\times 0.5$ $\times 1.5$ $\times 2.5$ $\times 3.5$ $\times 4.5$
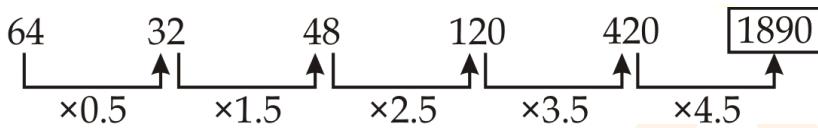
Wrong number = 1892

S51. Ans.(b)
Sol.
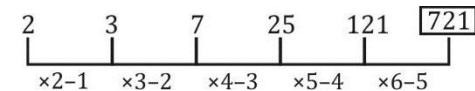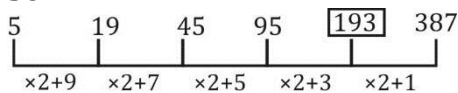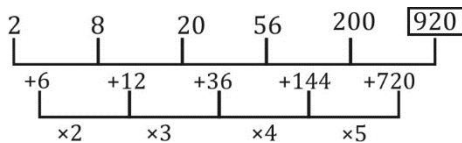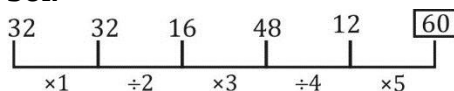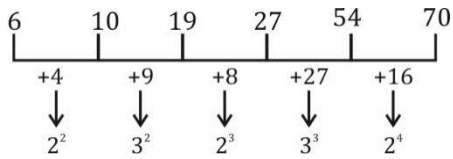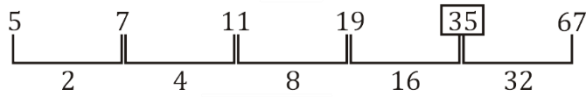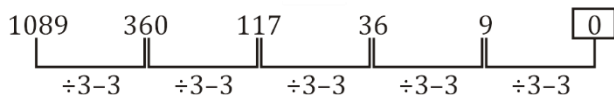
2   3   7   25   121 $\boxed{721}$

$\times 2-1$ $\times 3-2$ $\times 4-3$ $\times 5-4$ $\times 6-5$

S52. Ans.(d)
Sol.

5   19   45   95 $\boxed{193}$ 387

$\times 2+9$ $\times 2+7$ $\times 2+5$ $\times 2+3$ $\times 2+1$

S53. Ans.(e)
Sol.

2   8   20   56   200 $\boxed{920}$

$+6$ $+12$ $+36$ $+144$ $+720$

$\times 2$ $\times 3$ $\times 4$ $\times 5$

S54. Ans.(a)
Sol.

32   32   16   48   12 $\boxed{60}$

$\times 1$ $\div 2$ $\times 3$ $\div 4$ $\times 5$

S55. Ans.(c)
Sol.

| 6 | 10 | 19 | 27 | 54 | 70 |

+4   +9   +8   +27   +16

2^2 3^2 2^3 3^3 2^4

S56. Ans.(b)
Sol.

| 5 | 7 | 11 | 19 | 35 | 67 |

2   4   8   16   32

S57. Ans.(c)
Sol.

| 1089 | 360 | 117 | 36 | 9 | 0 |

÷3−3   ÷3−3   ÷3−3   ÷3−3   ÷3−3

S58. Ans.(a)
Sol.

8,   9,   64,   25,   216,   49

2^3 3^2 4^3 5^2 6^3 7^2

S59. Ans.(c)
Sol.

| 60 | 83 | 129 | 198 | 290 | 405 |

23   46   69   92   115

S60. Ans.(e)
Sol.

| 2 | 4 | 12 | 60 | 420 | 4620 |

×2   ×3   ×5   ×7   ×11

S61. Ans.(d)
Sol.

| 92 | 117 | 217 | 442 | 842 | 1467 |

+25   +100   +225   +400   +625

$25\times(1)^2$ $25\times(2)^2$ $25\times(3)^2$ $25\times(4)^2$ $25\times(5)^2$
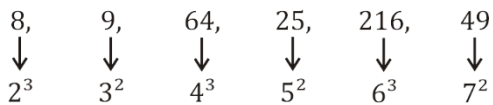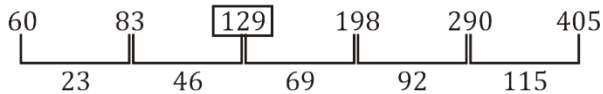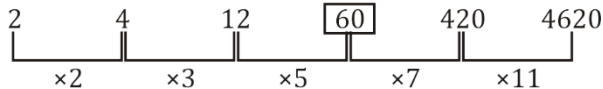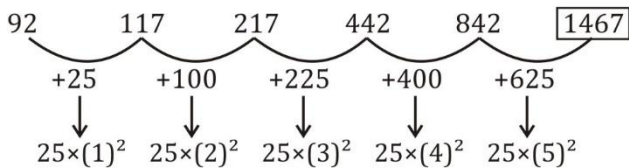
S62. Ans.(b)
Sol.

121	212	339	508	725	996
↓	↓	↓	↓	↓	↓
$(5)^3-4$	$(6)^3-4$	$(7)^3-4$	$(8)^3-4$	$(9)^3-4$	$(10)^3-4$

S63. Ans.(a)
Sol.

4   6   9   13.5   20.25   30.375

×1.5   ×1.5   ×1.5   ×1.5   ×1.5

S64. Ans.(c)
Sol.

81   106   155   276   445   734

+25   +49   +121   +169   +289

$(5)^2$ $(7)^2$ $(11)^2$ $(13)^2$ $(17)^2$ — consecutive — prime numbers

S65. Ans.(e)
Sol.

5986   2996   1502   756   384   199

÷2+3   ÷2+4   ÷2+5   ÷5+6   ÷2+7

S66. Ans.(e)
Sol.

180   185   193   207   233   283

+5   +8   +14   +26   +50

+3   +6   +12   +24

S76. Ans.(d)
Sol.

160   82   84   128   258   647

×0.5+2   ×1+2   ×1.5+2   ×2+2   ×2.5+2

S68. Ans.(c)
Sol.
Pattern is
$$\frac{670}{2} - 1 = 334$$
$$\frac{334}{2} - 1 = 166$$
$$\frac{166}{2} - 1 = 82$$

$$\frac{82}{2} - 1 = 40$$

$$\frac{40}{2} - 1 = 19$$

? = 670

S69. Ans.(a)
Sol.

Pattern is,

1250	961	736	567	446	365

$-(17)^2 \quad -(15)^2 \quad -(13)^2 \quad -(11)^2 \quad -(9)^2$

S70. Ans.(e)
Sol.

Pattern is,

120	120	126	146	188	260

$+(1^2-1) \quad +(3^2-3) \quad +(5^2-5) \quad +(7^2-7) \quad +(9^2-9)$

S71. Ans.(a)
Sol.

$$308 + 672 - \frac{40}{100} \times ? + \frac{80 \times 355}{100} = (28)^2$$

$$980 + 284 - 784 = \frac{2 \times ?}{5}$$

$$? = \frac{480 \times 5}{2}$$

? = 1200

S72. Ans.(b)
Sol.

$$\frac{178+?}{8} + 25 \times 42 - \frac{16}{100} \times 400 = (32)^2$$

$$\frac{178+?}{8} = 1024 + 64 - 1050$$

? = 38 × 8 – 178

? = 126

S73. Ans.(e)
Sol.

$$\sqrt{1296} + \sqrt{2025} + \sqrt{1521} - \sqrt{?} = \frac{13}{100} \times 900$$

$$36 + 45 + 39 - \sqrt{?} = 117$$

$$\sqrt{?} = 120 - 117$$

? = 9

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S74. Ans.(b)
Sol.

$350 + \frac{56 \times 240}{14} + \sqrt{?} = (11)^3$

$\sqrt{?} = 1331 - 350 - 960$

$\sqrt{?} = 21$

$? = 441$

S75. Ans.(c)
Sol.

$32 \times 35 + \sqrt{961} + \frac{19 \times ?}{100} = \frac{40}{100} \times 3305$

$1120 + 31 + \frac{19 \times ?}{100} = 1322$

$\frac{19 \times ?}{100} = 1322 - 1151$

$? = \frac{171 \times 100}{19}$

$? = 900$

S776. Ans.(c)
Sol.

$\frac{130}{100} \times 1200 + \frac{1250}{50} \times 30 = ?$

$130 \times 12 + 25 \times 30 = ?$

$? = 1560 + 750$

$? = 2310$

S7. Ans.(a)
Sol.

$\frac{156}{13} + (3)^2 \times 40 = \frac{?}{100} \times 600$

$12 + 9 \times 40 = ? \times 6$

$? = \frac{372}{6} = 62$

S78. Ans.(a)
Sol.

$\sqrt{81 \times 36} + \frac{680}{17} = ? + (512)^{\frac{1}{3}}$

$\sqrt{2916} + 40 = ? + 8$

$? = 54 + 40 - 8 = 86$

S79. Ans.(e)
Sol.

$\frac{1600}{100} \times 140 + \frac{?}{100} \times 1600 = 72 \times 40$

$16 \times 140 + 16 \times ? = 72 \times 40$

$2240 + 16 \times ? = 2880$

$? = \frac{640}{16} = 40$

S80. Ans.(d)
Sol.
$(17)^2 + (22)^2 + (8)^2 + ? = 1750 - 820 + 2210$
$? + 289 + 484 + 64 = 1750 - 820 + 2210$
$? = 2303$

S81. Ans.(b)
Sol.
$1782 \div 54 + 456 - 2346 \times 1 = ? \times 3$
$\Rightarrow 33 + 456 - 2346 = ? \times 3$
$\Rightarrow -1857 = ? \times 3$
$\Rightarrow ? = \frac{-1857}{3}$
$= -619$

S82. Ans.(c)
Sol.
$(575 + 7511 - 2769) \div (76 \times 1 + 675 - 342) = \sqrt{?}$
$= 5317 \div 409 = \sqrt{?}$
$\Rightarrow ? = (13)^2 = 169$

S83. Ans.(a)
Sol.
$\left[(\sqrt{3844 \times 9}) \div (27)^{\frac{1}{3}}\right] \times 23 = ?^2 + 337$
$\Rightarrow [(62 \times 3) \div 3] \times 23 = ?^2 + 337$
$\Rightarrow 1426 - 337 = ?^2$
$\Rightarrow ? = \sqrt{1089}$
$= 33$

S84. Ans.(d)
Sol.
$= \sqrt{(96)} \times 12 \div 18 + 26 - 9 = (65 - ?)\% \text{ of } 36$
$\Rightarrow 9 = \frac{(65 - ?)}{100} \times 36 \Rightarrow (65 - ?) = \frac{9 \times 100}{36}$
$\Rightarrow ? = 65 - 25 = 40$

S85. Ans.(a)
Sol.
$12 \times \sqrt{225} + 1212 - (1053 \div 9) = ?$
$\Rightarrow 1392 - (117) = ?$
$\Rightarrow ? = 1275$

S86. Ans.(b)
Sol.
$\frac{28}{100} \times 450 + \frac{?}{100} \times 1200 \simeq 200 + 226$
$? \times 12 = 426 - 126$
$? = \frac{300}{12} = 25$

S87. Ans.(d)
Sol.
1730 + 1270 + ? ≃ 250 × 20
? = 5000 – 3000
? = 2000

S88. Ans.(c)
Sol.
$1150 + \sqrt{? - 15} \simeq 90 \times 13$
$1150 + \sqrt{? - 15} = 1170$
$\sqrt{? - 15} = 20$
? = 415

S89. Ans.(e)
Sol.
$(?)^2 + (12)^2 + (6)^2 + (8)^3 \simeq 500 + 448$
$(?)^2 = 948 - 144 - 36 - 512$
$(?)^2 = 256$
? = 16

S90. Ans.(a)
Sol.
$\sqrt{410 + 220 - \sqrt{25}} \simeq ? + 15$
$? = \sqrt{630 - 5} - 15$
? = 25 – 15 = 10

S91. Ans.(c)
Sol.
Let no. of items sold by A in Feb be x
$(x + 48) = \frac{80}{100} \times (36 + 54)$
x = 72 – 48 = 24
Items sold by A in Jan = 150 – 24 = 126

S92. Ans.(a)
Sol.
Let total items sold by B in March be 'x '
Item sold by C in may =64
Atq,
$\frac{42 + x}{48 + 64} = \frac{1}{2}$
84 +2x = 112
$x = \frac{28}{2} = 14$

S93. Ans.(b)

Sol.

Average of item sold in April is equal to average of item sold in March by all sellers. So, total item sold in march is equal to total item sold in April

Total items sold by all sellers in March = 32 + 28 + 48 + 56 = 164

No. of item sold by seller B in March =164 – 48 – 24 – 74 = 18

Required percentage = $\frac{18}{36} \times 100 = 50\%$

S94. Ans.(e)

Average items sold by seller D in June

$= 64 \times \frac{150}{100} = 96$

Required difference = (96 + 32) – (48 + 32)

= 128 – 80 = 48

S95. Ans.(d)

Sol.

Items sold by seller C in May

$= 81 \times \frac{1}{3} = 27$

Required ratio $= \frac{42+81}{27+36} = \frac{123}{63}$

= 41 : 21

S96. Ans.(c)

Sol.

Total number of cars manufactured in year 2002, 2004 and 2006 together = 120 lakh

Total number of cars sold in year 2001, 2003 and 2005 together = 20 + 25 + 10 = 55 lakh

Required difference = 65 lakh

S97. Ans.(a)

Sol.

Required ratio $= \frac{10+5}{25} = \frac{3}{5}$

S98. Ans.(e)

Sol.

Required average = $\frac{30+40+25+35}{4} = \frac{130}{4} = \frac{65}{2}$ = 32.5 lakh

S99. Ans.(b)

Sol.

Required percentage = $\frac{15}{30+15} \times 100\%$

$= 33\frac{1}{3}\%$

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S100. Ans.(a)
Sol.
Manufactured cars in year 2007 = $\frac{45+15}{2} = 30$ lakh

Cars sold in year 2007 = $30 \times \frac{80}{100} = 24$ lakh

S101. Ans.(b)
Sol.
Total casual shoes sold by store on Monday and Friday together
$= \frac{240}{48} \times 32 + \frac{340}{68} \times 22$
$= 160 + 110$
$= 270$
Total sport shoes sold by store in Wednesday & Thursday together
$= \frac{420}{35} \times 20 + \frac{360}{24} \times 20$
$= 240 + 300$
$= 540$
Required percentage $= \frac{540-270}{540} \times 100$
$= \frac{270}{540} \times 100$
$= 50\%$

S102. Ans.(c)
Sol.
Average number of casual shoes sold by store on Tuesday & Thursday
$= \frac{\frac{320}{40} \times 48 + \frac{360}{24} \times 56}{2}$
$= \frac{384+840}{2}$
$= 612$
Average number of formal shoes sold by store on Thrusday & Friday
$= \frac{360+340}{2}$
$= \frac{700}{2}$
$= 350$
Required difference = 612 – 350 = 262

S103. Ans.(a)
Sol.
Total casual shoes sold by store on Sunday
$= \frac{360}{24} \times 56 \times \frac{125}{100}$
$= 1050$
Total sport shoes sold by store on Sunday
$= \frac{340}{68} \times 10 \times \frac{400}{100}$
$= 200$
Required sum = 1050 + 200 = 1250

S104. Ans.(c)
Sol.

Total sport shoes sold on Wednesday = $\frac{420}{35} \times 20$

= 240

Total sport shoes sold on Monday & Tuesday together

= $\frac{240}{48} \times 20 + \frac{320}{40} \times 12$

= 100 + 96

= 196

Required percentage = $\frac{240 - 196}{196} \times 100$

= $\frac{44}{196} \times 100$

= $22\frac{22}{49}\%$

S105. Ans.(b)
Sol.

Required ratio = $\frac{\frac{240}{48} \times 100}{\frac{360}{24} \times 100}$

= $\frac{500}{1500}$

= 1 : 3

S106. Ans.(b)
Sol.

Required ratio = $\frac{\frac{(20+15)}{100} \times 7500 - \frac{(40+30)}{100} \times 3000}{\frac{(15+10)}{100} \times 7500 - \frac{(15+5)}{100} \times 3000}$

= $\frac{2625 - 2100}{1875 - 600} = \frac{525}{1275} = \frac{21}{51} = \frac{7}{17}$

S107. Ans.(a)
Sol.

Girls student in Civil = $\frac{5}{100} \times 3000$

= 150

Total student in Civil = $\frac{10}{100} \times 7500$

= 750

Boys student in Civil = 750 – 150

= 600

Required % = $\frac{600 - 150}{150} \times 100$

= 300%

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S108. Ans.(b)
Sol.

Total students studying in computer, Electrical and civil department together $= \frac{(20+10+15)}{100} \times 7500$

= 3375

Girls student studying in computer, electrical and civil department together $= \frac{(40+5+15)}{100} \times 3000$

= 1800

So, average of boys student studying in computer, electrical and civil department together

$= \frac{3375 - 1800}{3} = 525$

S109. Ans.(d)
Sol.

Boys studying in mechanical department $= \frac{40}{100} \times 7500 - 3000 \times \frac{10}{100} = 2700$

Boys studying in Civil department $= \frac{10}{100} \times 7500 - 3000 \times \frac{5}{100} = 600$

Required difference = 2700 – 600 = 2100

S110. Ans.(c)
Sol.

Required percent $= \frac{\left[\left(\frac{20+15}{100}\right) \times 7500 - \left(\frac{70}{100}\right) \times 3000\right]}{\frac{(20+15)}{100} \times 7500} \times 100$

$= \frac{2625 - 2100}{2625} \times 100$

= 20%

S111. Ans.(d)
Sol.

Total population visiting park in city C = 75,000

Female population visiting park from city C $= 75,000 \times \frac{(100-25)}{100} = 56,250$

S112. Ans.(c)
Sol.

Let total male population in city C be 2x & total male population in city E be 3x

Required percentage $= \frac{3x \times \frac{100}{24}}{2x \times \frac{100}{25}} \times 100$

$= 156\frac{1}{4}\%$

S113. Ans.(c)
Sol.

Total population visiting park in city F $= 21000 \times \frac{60}{100} = 12,600$

Total male population visiting park in city F $= 21,000 \times \frac{60}{100} \times \frac{40}{100} = 5040$

Total population in city A visiting park $= 12600 \times 1.5 = 18,900$

Required difference = 18,900 – 5040=13860

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S114. Ans.(a)
Sol.
Total males visiting park in city B = 4,400
So, total park visitor in city B = $\frac{4400}{22} \times 100 = 20,000$
Male park visitor in city F = $\frac{4400}{2} = 2200$
Total park visitor in city F = $\frac{2200}{40} \times 100 = 5500$
Required percentage = $\frac{(5500-4400)}{5500} \times 100 = 20\%$

S115. Ans.(b)
Sol.
Total males visiting park in city A be x
∴ total males visiting park in city E = 1.6x
Atq,
x + 1.6x = 39000
2.6x = 39000
x = 15000
So, total females visiting park in city E = $1.6 \times 15,000 \times \frac{76}{24} = 76,000$

S116. Ans.(c)
Sol.
Let the population of North, East, West and South regions be 3x, 2x, 5x and 3x respectively.
Required ratio = $\frac{2x \times \frac{35}{100} + 5 \times \frac{30}{100}}{40 \times \frac{3x}{100} + 40 \times \frac{3x}{100}} = \frac{\frac{220x}{100}}{\frac{240}{100}x} = \frac{11}{12}$

S117. Ans.(a)
Sol.
Let the population of North, East, West and South regions be 3x, 2x, 5x and 3x respectively.
ATQ,
$\frac{3x \times 40}{100} = 13500 \Rightarrow$ x = 11250
Total population of south region = 3 × 11250 = 33,750
Required difference = $\frac{20}{100} \times 33750 = 6750$

S118. Ans.(d)
Sol.
Let the population of North, East, West and South region be 3x, 2x, 5x and 3x respectively.
Average of old people in East and South region
$= \frac{2x \times \frac{35}{100} + 3x \times \frac{20}{100}}{2} = \frac{130x}{200}$
Average of young people in East and middle-aged people in North region
$= \frac{2x \times \frac{30}{100} + \frac{40 \times 3x}{100}}{2} = \frac{180x}{200}$
Required percent = $\frac{\frac{180x}{200} - \frac{130x}{200}}{\frac{180x}{200}} \times 100$
$= \frac{50x}{180x} \times 100 = \frac{250}{9}\% = 27\frac{7}{9}\%$

S119. Ans.(e)
Sol.
Let the population of North, East and West and South region be 3x, 2x, 5x and 3x respectively
$\Rightarrow 3x = 1,20,000$
$\Rightarrow x = 40,000$
Total population of West region = 5 × 40,000 = 2,00,000
Total number of old-female
$= \frac{60}{100} \times \frac{35}{100} \times 1,20,000 + \frac{40}{100} \times \frac{30}{100} \times 200000$
$= 25,200 + 24,000$
$= 49,200$

S120. Ans.(a)
Sol.
Let the population of East the South region be 2x and 3x respectively
Required % $= \frac{\frac{35}{100} \times 2x}{\frac{40}{100} \times 3x} \times 100$
$= \frac{70x \times 100}{120x}$
$= \frac{7}{12} \times 100\% = 58\frac{1}{3}\%$

S121. Ans.(c)
Sol.
Average no. of female employees in company X, Y & K
$= \frac{900 + 1800 + 1500}{3} = \frac{4200}{3} = 1400$
Average no. of male employees in company X, Y & L
$= \frac{1200 + 1500 + 900}{3} = \frac{3600}{3} = 1200$
Required difference = 1400 – 1200 = 200

S122. Ans.(d)
Sol.
No. of female employees in company L = 2200
Total no. of employees in company K & L together
= (1000 + 1500) + (900 + 2200)
= 5600
Required percentage $= \frac{2200}{5600} \times 100$
$= 39\frac{2}{7}\%$

S123. Ans.(a)
Sol.
No. of male employees in company Y in 2017
$= 1500 \times \frac{110}{100} = 1650$
No. of male employees in company Z in 2017 $= 2200 \times \frac{120}{100} = 2640$
No. of female employees in company Y in 2017 $= 1800 \times \frac{70}{100} = 1260$

No. of female employees in company Z in 2017 = $1200 \times \frac{60}{100} = 720$

Required ratio = $\frac{1650+1260}{2640+720} = \frac{2910}{3360}$

= 97 : 112

S124. Ans.(e)
Sol.

Illiterate female employees of company L = $2200 \times \frac{25}{100} = 550$

Illiterate male employees of company L = $900 \times \frac{5}{9} = 500$

Total illiterate employees of company L = 550 + 500 = 1050

Required percentage = $\frac{1050}{2500} \times 100 = 42\%$

S125. Ans.(b)
Sol.

No. of male employees in company A = $4500 \times \frac{40}{100} = 1800$

No. of female employees in company A = $(1200 + 900) \times \frac{1}{2} = 1050$

Required total = 1800 + 1050 = 2850

S126. Ans.(b)
Sol. Average number of vacancies in Bank 'A' and 'E' together = $\frac{64.8°+50.4°}{2} = \frac{115.2°}{2} = 57.6°$

Required % = $\frac{86.4°-57.6°}{57.6°} \times 100 = \frac{28.8°}{57.6°} \times 100 = 50\%$

S127. Ans.(d)
Sol. Total number of vacancies in bank 'D' and 'F' together = $\frac{(57.6°+75.6°)}{360°} \times 3600$

= 133.2×10 = 1332

S128. Ans.(e)
Sol. Total number of vacancies in Bank 'E' = $\frac{50.4°}{360°} \times 3600 = 504$

Let Vacancies for male = 100 x

$\Rightarrow$ Vacancies for female = $\frac{75}{100} \times 100x = 75x$

ATQ,

100x + 75x = 504

$\Rightarrow$ x = $\frac{504}{175} = 2.88$

$\Rightarrow$ Vacancies for females = 75×2.88=216

S129. Ans.(a)
Sol. Required ratio = $\frac{(86.4+57.6)\times10}{(75.6+50.4)\times10} = \frac{144}{126} = \frac{8}{7}$

S130. Ans.(d)
Sol. Total number of vacancies in Bank 'C', 'E' and 'F' together = $\frac{(25.2°+50.4°+75.6°)}{360°} \times 3600$

= 151.2 × 10 = 1512

Required average = $\frac{1512}{3} = 504$

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S131. Ans.(d)
Sol.

Let total watches manufactured in year 2017 = 700x

So,

(28% - 20%) of 700x = 11200

7 × 8x = 11200

x = 200

Number of type A watches manufactured in year 2018

$= \frac{120}{100} \times 700 \times 200 \times \frac{12}{100}$

= 20160

S132. Ans.(a)
Sol.

Let, total no. of watches in 2017 be x.

Then, $\frac{1}{2}\left[\frac{(12+28)}{100} \times x\right] = 16100$

$\Rightarrow \frac{1}{2} \times \frac{2}{5}x = 16100$

or, x = 16100 × 5

Total no. of watches in 2018 = $\frac{16100 \times 5}{7} \times 8 = 92000$

S133. Ans.(c)
Sol.

Total no. of watches in 2018 = $2568 \times \frac{100}{25}$

= 25600 × 4 = 102400

Total no. of watches in 2017 = 89600

No. of watches of type B and D in 2017 = $\frac{(12+20)}{100} \times 89600$

= 28,672

S134. Ans.(b)
Sol.

Let the total number of watches manufactured in 2017 and 2018 is 7x and 8x respectively

Required ratio = $\frac{\frac{25}{100} \times 7x}{\frac{30}{100} \times 8x} = \frac{5 \times 7}{6 \times 8} = \frac{35}{48}$

S135. Ans.(c)
Sol.

Let total no. of watches manufactured in 2017 = 700

Then, total no. of watches manufactured in 2018 = 800

No. of all type of watches except type B in 2017

$= \frac{80}{100} \times 700 = 560$

No. of type B watches in 2018 = 800 – 560 = 240

Required percentage change = $\frac{(240 - 140)}{140} \times 100$

$= \frac{5}{7} \times 100 = 71\%$

Solutiolns (136-140):-
Employees using exactly 2 laptops = $150 - 20 = 130$
Employees using HP = $\frac{40}{100} \times 1000 = 400$

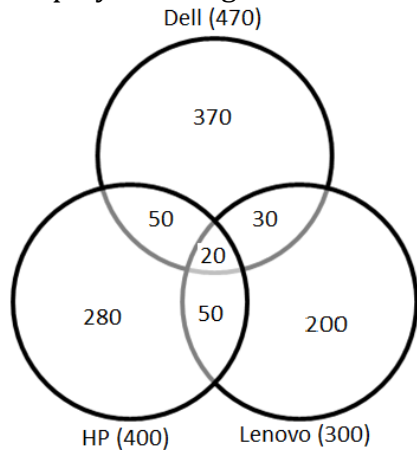Employees using only HP & Dell = Employees using only HP & Lenovo = $\frac{[400-(280+20)]}{2} = 50$

Employees using only Dell & Lenovo = $150 - (20 + 50 + 50) = 30$
Employees using HP = $280 + 50 + 50 + 20 = 400$
Employees using Lenovo = $200 + 50 + 30 + 20 = 300$
Employees using only Dell = $1000 - (50 + 280 + 50 + 20 + 30 + 200) = 370$
Employees using Dell = $370 + 50 + 20 + 30 = 470$

Dell (470)

370

50   30

20

280   50   200

HP (400)   Lenovo (300)

S136. Ans.(b)
Sol. employees using only Dell & Lenovo = 30

S137. Ans.(e)
Sol. required % = $\frac{370}{200} \times 100 = 185\%$

S138. Ans.(a)
Sol. required ratio = $30 : 20 = 3 : 2$

S139. Ans.(e)
Sol. required % = $\frac{470-300}{300} \times 100 = 56.67\%$

S140. Ans.(c)
Sol. employees using only 1 laptop = $370 + 280 + 200 = 850$

S141. Ans.(b)
Sol.
A and B can do 50% work in ⇨ 5 days
So, they can do 100% work ⇨ 10 days
C can do ⇨ 50% work⇨ 7.5 days
C can do ⇨ 100% work ⇨ 15 days
Ratio of efficiency of A & B together to C's efficiency
$\Rightarrow 3 : 2$

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B's efficiency ⇒ 37.5% less than C's efficiency

$$\Rightarrow 2 \times \left(\frac{100-37.5}{100}\right) = \frac{5}{4} = 1.25$$

A's efficiency ⇒ 3–1.25 = 1.75

A can complete the work ⇒ $\frac{10 \times 3}{1.75} = 17\frac{1}{7}$ days

S142. Ans. (a)

Let amount invested ⇒ 100 x

Amount become after 2 years in S.I. = $\frac{100x \times 120}{100} = 120x$

Amount after 2 years of C.I. = $120x \left(1 + \frac{10}{100}\right)^2 = 145.2x$

Total interest earned ⇒ 145.2x –100x = 45.2x

Initial amount ⇒ $\frac{100x \times 1130}{45.2x} = 2500$

S143. Ans. (e)

Sol.

Let total distance, time taken in downstream, speed of boat and speed of stream is d, t, x and y respectively.

So ATQ ⇒

$\frac{d}{x+y} = t$ ....(i)

$\frac{d}{x-y} = 2t$ ...(ii)

From (i) and (ii)

$\frac{d}{x-y} = 2\left(\frac{d}{x+y}\right)$

⇒ x+y = 2x–2y

⇒ x = 3y

So,

Required % = $\frac{y}{x} \times 100 = \frac{y}{3y} \times 100 = 33\frac{1}{3}\%$

S144. Ans. (b)

Sol.

Jar A ⇒

x : y

2 : 3....(i)

Jar B ⇒

x : y

4:5....(ii)

On equating the ratio -

Multiple (i) by 9 and Multiple (ii) by 5.

Jar A Jar B

X 18   20

Y 27   25
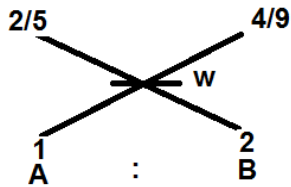
When 1 Part of Jar A and 2 Part of Jar B mixed

Required Ratio = $\frac{18 \times 1 + 20 \times 2}{27 \times 1 + 25 \times 2}$

Required Ratio = $\frac{58}{77}$

Or,

From mixture and allegation

$$\frac{\frac{4}{9} - w}{w - \frac{2}{5}} = \frac{1}{2}$$

$$\frac{8}{9} + \frac{2}{5} = 3w$$

$$\frac{40 + 18}{45} = 3w$$

$$w = \frac{58}{135}$$

Required ratio $= \frac{58}{135 - 58} = \frac{58}{77}$

S145. Ans.(e)
Sol.

SI for 2 years $= \frac{450}{3} \times 2 = 300$

And, S.I for 1 year $= \frac{450}{3} = 150 = \frac{PR}{100}$

CI for 2 years = 309

$CI_2 - SI_2 = Rs. 9$

Difference between C.I and S.I for 2 years $= \frac{PR^2}{100^2} = 9$

$$\frac{PR \times R}{100} = 900$$

$$\Rightarrow R = \frac{900}{150} = 6\%$$

$$CI_2 - SI_2 = P\left(\frac{R}{100}\right)^2$$

$$9 = P\left(\frac{6}{100}\right)^2$$

P = Rs. 2500

S146. Ans.(b)
Sol.
If 18,000 totally invested in scheme 'A'
The, interest earned after 2 years

$$= 18000\left(1 + \frac{15}{100}\right)^2 - 18,000$$

= 5805
If 18,000 totally invested in scheme 'B'.
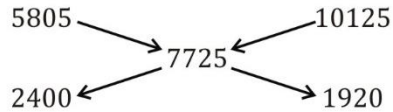Then, interest earned after 2 year

$$= 18000\left(1 + \frac{25}{100}\right)^2 - 18,000$$

= 10125

Use mixture and allegation

15% rate (scheme A) 25% rate (scheme B)

5805 ⟍   ⟋ 10125
        ⟍ 7725 ⟋
2400 ⟋   ⟍ 1920

     5   :   4

Required% $= \frac{5-4}{5} \times 100 = 20\%$

S147. Ans.(d)
Sol.
ATQ,
$$\frac{2x + 2000}{2x + 2000 + x + 8000 + 3x + 4000} = \frac{4000}{16000}$$
X= 3000
Required difference ⇒ 3x + 4000 ∼ x +8000
⇒ 2000

S148. Ans.(d)
Sol.
Let, time given by Yogesh, Deepak and Sanjay is x, y and z months respectively
ATQ,

16000×x	:	12000×y	:	8000×z
1	:	1	:	1
x	:	y	:	z
= 3	:	4	:	6

Required % $= \frac{3}{4} \times 100 = 75\%$

S149. Ans.(c)
Sol.
ATQ,
$$(X-1000)\left[1 + \frac{30}{100}\right]^2 - (X-1000) + \frac{(X+1000)\times 20 \times 2}{100} = 5160$$
$$(X-1000) \times \frac{69}{100} + (X+1000) \times \frac{40}{100} = 5160$$
69X – 69,000 + 40X + 40,000 = 5,16,000
109X = 5,16,000 + 29,000
$$X = \frac{545000}{109} = 5000$$
Amount invested on scheme B
= 5000 + 1000
= Rs. 6000

S150. Ans.(c)

Sol.

Let Ritu's investment be 7x and Priya's investment be 8x

Ratio of their profit $= \frac{7x \times 9}{8x \times 12} = 21 : 32$

Difference between their shares in profit $= \frac{32-21}{32+21} \times 34450$

$= \frac{11}{53} \times 34450$

= 7150

S151. Ans.(e)

Sol. ∵ a, b, c and d are four consecutive numbers and a + c = 120

∴ a +a+4 = 120

⇒ 2a = 116 ⇒ a = 58

∴ b = 60 and d= 64

∴ b × d = 60 × 64 = 3840

S152. Ans.(d)

Sol. Let the numbers be a, b, and c respectively.

∴ $\frac{a+c}{2} - \frac{b+c}{2} = 24$

⇒ (a +c) – (b + c) = 24 × 2 = 48

⇒ a –b = 48

S153. Ans.(b)

Sol.

Let 200 promised to P & 300 to Q

After they went back from promise

P got

$= 200 - 200 \times \frac{25}{100} + 300 \times \frac{30}{100}$

= 240 votes

Q got $= 300 - 300 \times \frac{30}{100} + 50$

= 260 votes

Q wins by 20 unit which is equal to 400 votes

∴ $1\ unit = \frac{400}{20} = 20$

And total votes = 20 × 500

= 10000 votes

S154. Ans.(e)

Sol.

Let two-digit number = 10x + y

According to question

x + y = 12 ..(i)

and $|x - y| = 6 \Rightarrow x - y = \pm 6$ ..(ii)

By solving equation (i) and (ii)

x = 9 or x = 3
y = 3 or y = 9
∴ Required two-digit number
= 10x + y = 10 × 9 + 3 Or 10x + y = 10 × 3 + 9
= 90 + 3 = 93 or 30+9 = 39
 93 & 39 both can be the answers
So, Either (a) or (c)

S155. Ans.(d)
Sol.
Second no. $= \frac{100 \times 12}{100} = 12$
∴ first no. $= 12^3 \times \frac{3}{2} = 1728 \times \frac{3}{2} = 2592$
∴ Required sum = 12 + 2592 = 2604

S156. Ans.(d)
Sol.

7 unit ⇾ 2100
I = E + S
∴ 9 unit ⇾ 300 × 9 = Rs. 2700.

S157. Ans.(e)
Sol.
Let the four consecutive even no. be (x – 3), (x – 1), (x + 1) & (x + 3)
And three consecutive odd no. be (y – 2) , y, (y + 2)
ATQ,
4x – 3y = 49 …(i)
x – 3 + y – 2 = 23
x + y = 23 + 5
x + y = 28 …(ii)
Multiplying (ii) by 3 and on solving
∴ x = 19
y = 9
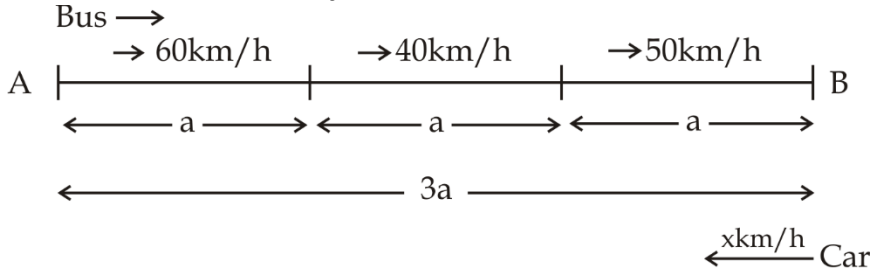∴ largest even no. = 19 + 3 = 22

S158. Ans.(c)
Sol.
Required probability
$= \frac{2}{5} \times \frac{1}{6} \times \frac{3}{7} + \frac{3}{5} \times \frac{5}{6} \times \frac{3}{7} + \frac{3}{5} \times \frac{1}{6} \times \frac{4}{7} + \frac{2}{5} \times \frac{5}{6} \times \frac{4}{7}$
$= \frac{201}{210} = \frac{67}{70}$
Or
Probability that no one is selected $= \frac{3}{5} \times \frac{1}{6} \times \frac{3}{7} = \frac{3}{70}$
Required probability $= 1 - \frac{3}{70} = \frac{67}{70}$

S159. Ans.(a)
Sol.

Let the distance cover by bus ⇒ 3a

Let speed of car = x km/h

Car cover $\frac{400}{9}$% in 4 hours

So, it covers $\frac{100}{9}$% in 1 hour

$\Rightarrow \frac{100}{900} \times 3a$ in a 1 hour

So, speed of car $= \frac{a}{3}$ km/h

Bus cover $\rightarrow \frac{500}{9}$% of 3a $= \frac{5}{3}a$

a km ⇒ with 60 km/h

$\frac{2a}{3}$ km ⇒ with 40 km/h

$\Rightarrow \frac{a}{60} + \frac{2a}{3 \times 40} = 4$

$\Rightarrow$ a = 120 km

Speed of car $\Rightarrow \frac{120}{3}$ km/h = 40 km/h

S160. Ans.(d)
Sol.

Total ways to form a committee of 5 members from 6 men and 7 women in which at least 3 men selected
= 2 women, 3 men + 1 women, 4 men + 5 men

$^6C_3 \times {^7C_2} + {^6C_4} \times {^7C_1} + {^6C_5}$

= 531

S161. Ans.(a)
Sol.

Let present age of P and Q be 'x' and 'y' years respectively.

ATQ,

x + y = 52 …(i)

and,

$\frac{x+4}{y-2} = \frac{4}{5} \Rightarrow 5x + 20 = 4y - 8$

$\Rightarrow 5x - 4y = -28$…(ii)

From (i) and (ii)

x = 20 years.

P's age 5 years hence = 25 years.

S162. Ans.(c)

Sol.

Let the quantity of water and alcohol in the initial mixture be 8x lit and 5x lit respectively.

ATQ,

$\frac{5x}{8x+4} = \frac{5}{9}$

$\Rightarrow$ 45x = 40x + 20

$\Rightarrow$ x = 4

Quantity of initial mixture=13x=13× 4 = 52 *lit*

S163. Ans.(a)

Sol.

Let the alcohol added be x liter

ATQ,

$\frac{9+x}{30+x} = \frac{2}{5}$

Or, 45 + 5x = 60 + 2x

Or, 3x = 15

Or, x = 5 ltr.

S164. Ans.(d)

Sol.

Let present age of Ayush be x years and that of Veer be y years

ATQ,

$\frac{x+1}{y-5} = \frac{1}{1}$

$\Rightarrow$ x – y = –6 …(i)

And,

x + y = 54 …(ii)

From (i) and (ii)

x = 24 years and y = 30 years

Required ratio $= \frac{30}{24} = 5 : 4$

S165. Ans.(c)

Sol.

Let present age of Veer = 7x

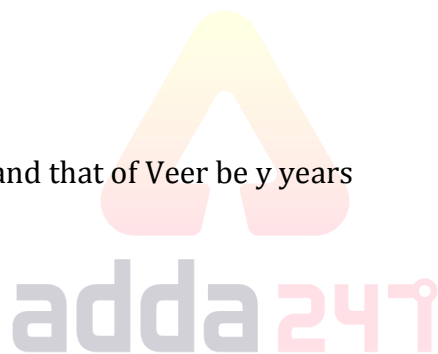And present age of Rohit = 5x

Present age of Arun = 5x + 10

ATQ,

$\frac{7x-10}{5x} = \frac{16}{15}$

$\Rightarrow$ 105x – 150 = 80x

x = 6

Hence present age of Rohit = 5 × 6 = 30 years

S166. Ans.(d)
Sol.

Left milk in container = $75 \times \left(1 - \frac{15}{75}\right)^2$ = 48 liters

S167. Ans.(b)
Sol.

Milk in mixture = $120 \times \frac{5}{12} = 50 \, l$

Water in mixture = $120 \times \frac{7}{12} = 70 \, l$

Let milk & water added in mixture is x & 3x respectively

$\frac{50 - 48 \times \frac{5}{12} + x}{70 - 48 \times \frac{7}{12} + 3x} = \frac{3}{5}$

$\frac{30 + x}{42 + 3x} = \frac{3}{5}$

150 + 5x = 126 + 9x

4x = 24

x = 6 l

Amount of water added in resulting mixture = $6 \times 3 = 18 \, l$

S168. Ans.(b)
Sol.

$Profit \% = 16\frac{2}{3}\% = \frac{1}{6}$

Let CP = 6

So, SP = 7

Now MP = $7 \times \frac{4}{3} = \frac{28}{3}$

Required % = $\frac{\frac{28}{3} - 6}{6} \times 100$

$= \frac{10}{18} \times 100 = 55.55\%$

S169. Ans.(b)
Sol.

Probability of selecting no women $= \frac{^7C_2}{^{12}C_2}$

$= \frac{7}{22}$

Probability of selecting at least one women $= 1 - \frac{7}{22} = \frac{15}{22}$

S170. Ans.(b)
Sol.

Let investment of A, B, C be 2x, 5x and 7x respectively.

Let extra amount added by 'A' after six months be Rs. y

ATQ,

2x + y = $\frac{1}{2}$ [5x + 7x]

2x + y = 6x

y = 4x

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Ratio of profit share

A - $\dfrac{2x \times 6 + (4x + 2x) \times 6}{5x \times 12}$ = 48 : 60 : 84
B - $\overline{}$
C - $7x \times 12$ = 4 : 5 : 7

B's share of profit = Rs 4250

⇒ 5 ▱ 4250

⇒ 1 ▱ 850

⇒ (4 + 5 + 7) = 16 ▱ 16 × 850 = 13600

Total profit = Rs. 13600.

S171. Ans.(d)
Sol.

Area of square = a^2 (a- side of square)

ATQ—

a^2 = 729 cm. sq.

a = 27 cm

Perimeter of square = perimeter of rectangle

4a = 2 (ℓ + b)

4 × 27 = 2 (2b + b)

b = 18 cm

ℓ = 36 cm

Area of rectangle = (36 × 18) = 648 cm.Sq.

S172. Ans.(c)
Sol.

Total possible remainders = [0, 1, 2, 3, 4........10]

Favorable remainders = [1, 3, 5, 7, 9]

Required probability = $\dfrac{5}{11}$

S173. Ans.(e)
Sol.

R E C O G N I T I O N

Required ways [such that 2 'O' and 2 'N' always come together]

= $\dfrac{9!}{2!}$ = 181440 ways

S174. Ans.(b)

Sol. Ritu and Anu's one day work = $\dfrac{1}{16}$

Anu's one day work = $\dfrac{1}{24}$

Ritu's one day work = $\dfrac{1}{16} - \dfrac{1}{24} = \dfrac{1}{48}$

Neha's one day work = $\dfrac{1}{30}$

Ratio of Efficiency of Neha and Ritu is = $\dfrac{1}{30} : \dfrac{1}{48}$ = 8 : 5

S175. Ans.(e)
Sol. Total Sugar = 800 kg
By using Allegation method
Profit   Loss
+10%   -15%
            -5.625%
9.375   15.625
3   :   5

Sugar sold at 10% profit = $\frac{800}{8} \times 3 = 300$ kg

Sugar sold at 15% loss = $\frac{800}{8} \times 5 = 500$ kg

Let cost price = x Rs./ kg
when quantity interchanged →

Selling price of that quantity which is sold at loss = $300x \times \frac{85}{100} = 255x$

Selling Price of that quantity which is sold at Profit = $\frac{500 \times x \times 110}{100} = 550x$

Total Cost Price = 800x
Total Selling Price = 255x + 550x = 805x

Profit % = $\frac{805x - 800x}{800x} \times 100 = 0.625\%$

S176. Ans.(c)
Sol. Let radius of cylinder = r
And height of cylinder = h
Total surface area of cylinder = $2\pi r(r + h)$
Curved surface area of cylinder = $2\pi r$h
ATQ,
$\frac{2\pi r(r+h)}{2\pi rh} = \frac{4}{3}$
$\Rightarrow$ 3r+3h = 4h
$\Rightarrow$ 3r = h
Required % = $\frac{h-r}{h} \times 100 = \frac{3r-r}{3r} \times 100$
$= \frac{200}{3}\% = 66\frac{2}{3}\%$

S177. Ans.(d)
Sol.
Let length and breadth of rectangle be 3x cm and 2x cm respectively
ATQ—
$3x \times 2x = 486 \, cm^2$
$x^2 = \frac{486}{6}$
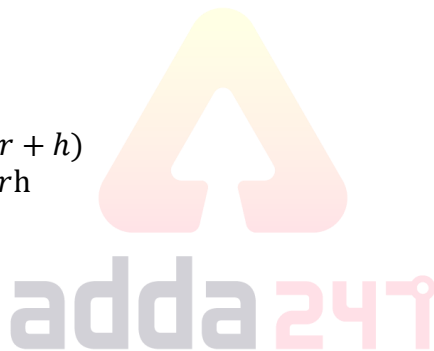$x = 9 \, cm$
Length of rectangle = 3 × 9 = 27 cm
Breadth of rectangle = 2 × 9 = 18 cm
Radius of cone = 18 – 4 = 14 cm
Height of cone = 27 - 9 = 18 cm
Volume of cone = $\pi r^2 \frac{h}{3}$
$= \frac{22}{7} \times 14 \times 14 \times \frac{18}{3}$
$= 3696 \, cm^3$

S178. Ans.(d)
Sol.
Radius of sphere = radius of semicircle
Surface area of sphere = 4π (radius)^2
(radius of sphere)^2 $= \frac{616 \times 7}{4 \times 22} = 49$
(radius of sphere)= 7
Height of cylinder = 7 × 2.5
= 17.5 cm
Radius of cylinder $= \frac{17.5}{5} = 3.5$ cm

S179. Ans.(d)
Sol.
Volume of sphere $= \frac{4}{3}\pi R^3$ (R ⮕ Radius)
Volume of cylinder = $\pi r^2 h$ (r ⮕ radius of cylinder, h ⮕ height of cylinder)
R = r (given)
ATQ,
$\frac{4}{3}\pi R^3 = 288\pi$ ⇒ $R^3 = 216$ ⇒ R=6cm=r
Radius of cylinder=r=6cm
Height of cylinder=h=12cm
Volume of cylinder = $\pi r^2 h$
= 432π cm^3

S180. Ans.(c)
Sol.
If distance is same, then Speed is inversely addition to time taken
⇒ Ratio between Speed in upstream to downstream is 1 : 2
Let Speed of boat in upstream and downstream be x and 2x respectively.
Speed of stream $= \frac{2x-x}{2} = 4$
⇒ $x = 8$
Upstream speed = 8 km/hr
Required time $= \frac{48}{8} = 6\ hours$

S181. Ans.(c)
Sol.
Let efficiency of all pipes ⮕ x unit/time
Let 'a' number of outlet pipes and 't' time taken by them.
Now,
+ (8 – a)xt – (a × x) × t = Total work ...(i)
And
One outlet pipe ⮕ 1 × x × 2t = total work ...(ii)
Comparing (i) and (ii)
8xt – 2axt = 2xt
a = 3

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S182. Ans.(a)
Sol.
Speed of slow runner is half of the speed of fast runner
So slow runner take double of time
Time taken by slower runner = 2 × 5 = 10 sec

S183. Ans.(e)
Sol.
Ratio of speed of boat in upstream to downstream
27 : 36 = 3 : 4
So ratio speed of stream to speed of boat in still water
$\frac{4-3}{2} : \frac{4+3}{2}$
1 : 7
Require % = $\frac{1}{7-1} \times 100 = 16\frac{2}{3}$%

S184. Ans.(c)
Sol.
Let efficiency of A and B is a and b respectively
Then
$\frac{a \times 20}{b \times 15} = \frac{5}{4}$
$\frac{a}{b} = \frac{5}{4} \times \frac{15}{20} = \frac{15}{16}$

S185. Ans.(a)
Sol.
Suppose, Aman does x units per day,
And Rahul & Satish do y and 3y units per day respectively.
Then,
ATQ,
2x = y + 3y
or, 2x = 4y
or, x = 2y
Time taken by all of them = $\frac{\text{Total work}}{\text{units/day}}$
$= \frac{20 \times x}{(x+y+3y)}$
$= \frac{20 \times 2y}{2y+y+3y}$
$= \frac{40y}{6y}$
$= \frac{20}{3}$ days.

S186. Ans.(d)
Sol.
Let speed of Bhavya in still water be x km/hr
And speed of stream be r km/hr
ATQ,

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$\frac{24}{x-r} + \frac{36}{x+r} = 9$ ...(i)

Also,

$(x + r) - (x - r) = 8$

or, $2r = 8$

or, $2r = 8$

or, $r = 4$ km/hr

putting, $r = 4$ in eqn. (i),

we get, $x = 8$ km/hr.

S187. Ans.(c)
Sol.

1st C.P. ⟹ 12000 Rs.

1st S.P. ⟹ $\frac{12000 \times 80}{100}$ = 9600 Rs.

Now,

2nd C.P. ⟹ 9600 Rs.

2nd S.P. ⟹ $\frac{9600 \times 130}{100}$ = 12480 Rs.

Profit ⟹ 480 Rs.

S188. Ans.(a)
Sol.

Let length of train = L meters

ATQ—

$108 \times \frac{5}{18} = \frac{L+240}{14}$

$30 \times 14 = L + 240$

L = 180 meters

Let time taken by train be T sec to cross goods train

$= (144 + 108) \times \frac{5}{18} = \frac{180+320}{T}$

$252 \times \frac{5}{18} = \frac{500}{T}$

$T = \frac{500}{70}$

$T = 7\frac{1}{7}$ sec.

S189. Ans.(c)
Sol.

Let speed of Roly be x km/hr

Therefore, speed of Abhishek is $\frac{3}{4}$ x km/hr

ATQ -

$\frac{48 \times 4}{3x} - \frac{48}{x} = 1$

x = 16

∴ speed of Abhishek $= 16 \times \frac{3}{4} = 12$ km/hr

Speed of Rahul $= 12 \times \frac{350}{100}$

= 42 km/hr

∴ Required Time $= \frac{840}{42} = 20$ hr

S190. Ans.(c)
Sol.
Let upstream speed = u
Downstream speed = d
Now $\frac{40}{u} + \frac{60}{d} = 13$ ... (i)
Also
$\frac{50}{u} + \frac{72}{d} = 16$ ... (ii)
Solving eqn. (i) and (ii)
d = 12
u = 5
$\therefore b = \frac{u+d}{2} = \frac{12+5}{2} = 8.5$ kmph

S191. Ans.(a)
Sol.
Quantity I.
Second no. $= \frac{100 \times 12}{100} = 12$
$\therefore$ first no. $= 12^3 \times \frac{3}{2} = 1728 \times \frac{3}{2}$
$= 2592$
$\therefore$ Required sum = 12 + 2592 = 2604
Quantity I > Quantity II

S192. Ans.(c)
Sol.
Quantity I.
Distance travelled by thief in 15 min $= 60 \times \frac{15}{60} = 15$ km

Time taken by police to catch thief after 11:15 pm $\geq \frac{15}{65-60} \geq 3$ hr

Quantity I ≥ Quantity II

S193. Ans.(e)
Sol.
Quantity II.

Ratio of profit $\Rightarrow$

A	:	B	:	C
12×12	:	12×x	:	8×(12−x)
36	:	3x	:	2(12−x)

ATQ,
$\frac{36}{60 + x} = \frac{1800}{3200}$
$\Rightarrow 60 + x = 64$
$\Rightarrow x = 4$
Quantity I = Quantity II

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S194. Ans.(a)
Sol. Quantity I.
Let speed of stream = y km/hr.
ATQ,
$$\frac{x-18}{15-y} = \frac{x}{15+y} \dots (i)$$
Also,
$15 + y - (15 - y) = 6$
$2y = 6$
$y = 3$ ...(ii)
From (i) and (ii)
$$\frac{x-18}{12} = \frac{x}{18}$$
x = 54 km
Quantity I > Quantity II

S195. Ans.(a)
Sol.
Quantity I:
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

Quantity I > Quantity II

S196. Ans.(e)
Sol.
No marks are given in numbers.
So, we can't find the marks obtained in Mathematics.

S197. Ans.(a)
Sol.
I. Let the four consecutive even integer be
x, $x + 2$, $x + 4$ and $x + 6$
$x + x + 2 + x + 4 + x + 6 = 11 \times 4 = 44$
$\Rightarrow x = \frac{32}{4} = 8$
II. we can't find from statement II
So, statement I alone is sufficient to answer.

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S198. Ans.(c)
Sol.
I. Let P gets Rs. $2x$ and (Q + R) gets Rs. $3x$
$\Rightarrow 2x + 3x$ = Rs. 705
$\Rightarrow x$ = Rs. 141
P = 2 × 141 = Rs. 282
Q + R = 3 × 141 = Rs. 423
II. Let Q gets Rs. x and $(P + R)$ gets Rs. $4x$
$\Rightarrow x + 4x = 705$
$\Rightarrow x = 141$
P + R = 4 × 141 = Rs. 564
From I and II
P = Rs. 282
Q = Rs. 141
R = Rs. 564 – 282 = Rs. 282
Q gets the least among all.
So, both statements are necessary to answer the questions.

S199. Ans.(d)
Sol.
From I – Let radius & height of cylinder is 7x and 6x respectively
ATQ –
$\frac{22}{7} \times 49x^2 \times 6x = 7392$
x = 2 cm
Breadth of rectangle = $2 \times 6 = 12\ cm$
Given, 2(L + 12) = 80
$L = 40 - 12$
L = 28 cm
From II – Side of square = a cm
Given, a² = 196
a = 14 cm
Length of rectangle = $14 \times 2\ = 28\ cm$
So, either from statement I or statement II we can determine the answer

S200. Ans.(c)
Sol.
Total number of balls in the bag = (7 + y + x)
From I – $\frac{y}{(7 + y + x)} = \frac{1}{4}$
$- x + 3y = 7$ --------- (i)
From II – $\frac{x}{(7 + y + x)} = \frac{2}{5}$
$3x - 2y = 14$ ------- (ii)
From (I) & (II) –
x = 8 , y = 5
Total blue & yellow balls in bag = 8 + 5 = 13
So, statement I and statement II together are required to answered the question

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