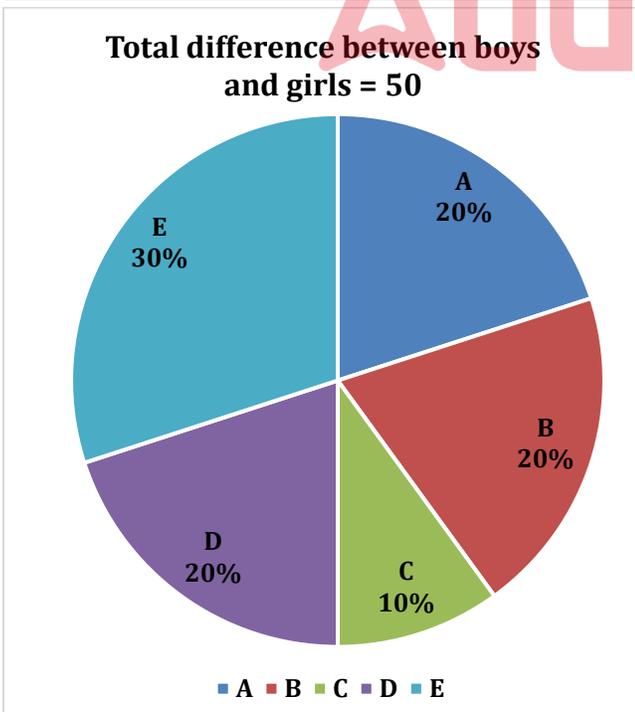
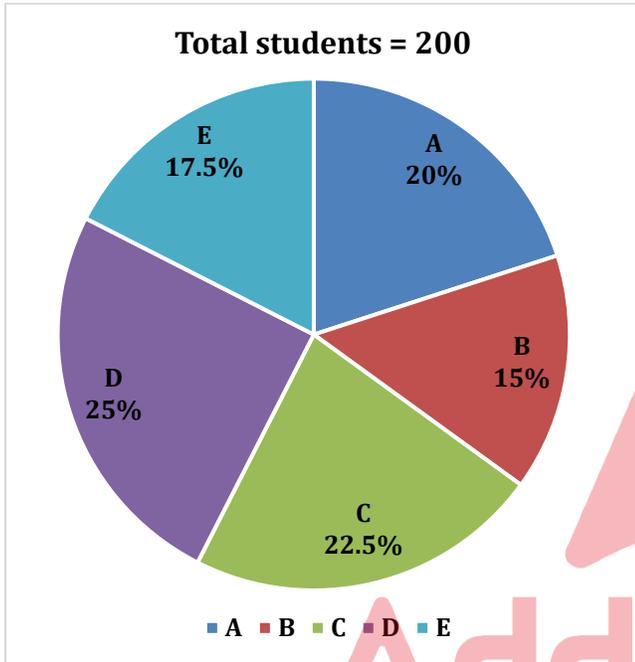


## 200 Questions for IBPS PO Mains 2022 - Quantitative Aptitude

**Direction (1-5):** Pie Chart (I) shows percentage distribution of total number of students in five different schools and pie chart (II) shows percentage distribution of total difference between number of boys and girls in these five schools. Read the data carefully and answer the questions.



**Q1.** When one student from each A & C chosen as class monitor, then find the probability of both class monitors being boys (boys > girls, for both the schools)?

- (a)  $\frac{35}{72}$
- (b)  $\frac{5}{9}$
- (c)  $\frac{25}{84}$
- (d)  $\frac{25}{72}$
- (e)  $\frac{25}{56}$

**Q2.** If five students from each B & D are chosen for representing their respective school in a debate competition, then find the maximum possible probability of girls in remaining students?

- (a)  $\frac{2}{3}$
- (b)  $\frac{8}{15}$
- (c)  $\frac{4}{7}$
- (d)  $\frac{3}{5}$
- (e)  $\frac{4}{15}$

**Q3.** Number of boys in school F are 5 less than that of in E and number of girls in F are same as E. Find probability of selecting 1 boy & 1 girl from school - F. (Boys > girls, in school E)?

- (a)  $\frac{40}{87}$
- (b)  $\frac{14}{29}$
- (c)  $\frac{43}{87}$
- (d)  $\frac{2}{3}$
- (e)  $\frac{16}{29}$

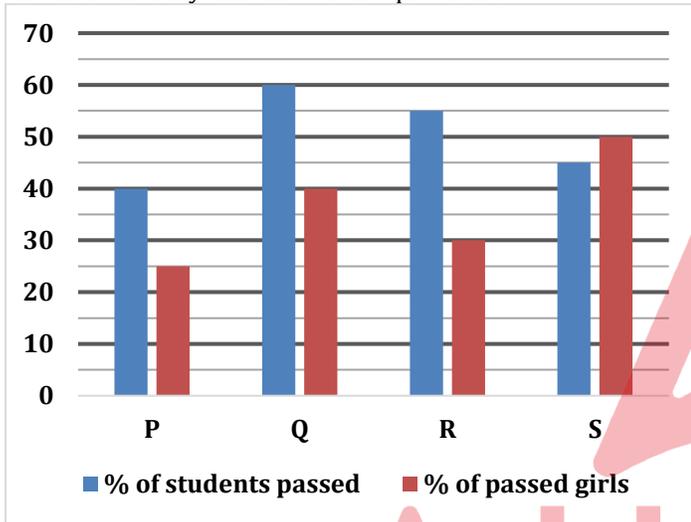
**Q4.** Ratio of number of boys to girls left school A is 1 : 2 and when two students chosen from remaining students of school A, then probability of both being boys or both being girl is  $\frac{11}{18}$ . Find difference between number of boys and girls who left the school A (Boys > girls, in school A)?

- (a) 6
- (b) Can't be determined
- (c) 1
- (d) 4
- (e) 2

**Q5.** Ritu invested her total saving in three different FD schemes A, B and C in the ratio of 5 : 4 : 6 on CI for two years at the rate of 10%, 15% and 20% respectively. If interest is calculated annually and interest from scheme B is Rs. 744 more than interest from scheme A then, find difference between interest received from scheme C and scheme B by Ritu?

- (a) Rs. 4185
- (b) Rs. 4175
- (c) Rs. 3840
- (d) Rs. 4580
- (e) Rs. 3250

**Direction (6-10):** Bar graph given below shows percentage of students passed out of total students in four different schools and percentage of girls passed out of total passed students in these four different schools in annual exam. Read the data carefully and answer the questions.



**Q6.** Total boys passed from P is 900 and total girls failed from Q is 640. If total girls failed from Q is 36% less than of total students failed from Q, then find ratio of total students participated in exam from Q to that of from P?

- (a) 5 : 9
- (b) 5 : 7
- (c) 3 : 5
- (d) 5 : 6
- (e) 4 : 7



**Q7.** Total boys failed from school Q is 60% of total students failed from that school and total boys passed from same school is 1440. Total failed boys from R is 192 more than total female passed from same school. Find difference between total girls failed from Q & R, if boys failed from R is 42% less than total students failed from R.

- (a) 272
- (b) 242
- (c) 252
- (d) 240
- (e) 262

**Q8.** If total number of girls passed from S is 1125 and total failed boys are  $133\frac{1}{3}\%$  more than that of total failed girls from same school, then find difference between number of failed boys and failed girls from school S?

- (a) 1100
- (b) 1000
- (c) 1110
- (d) 900
- (e) 1200

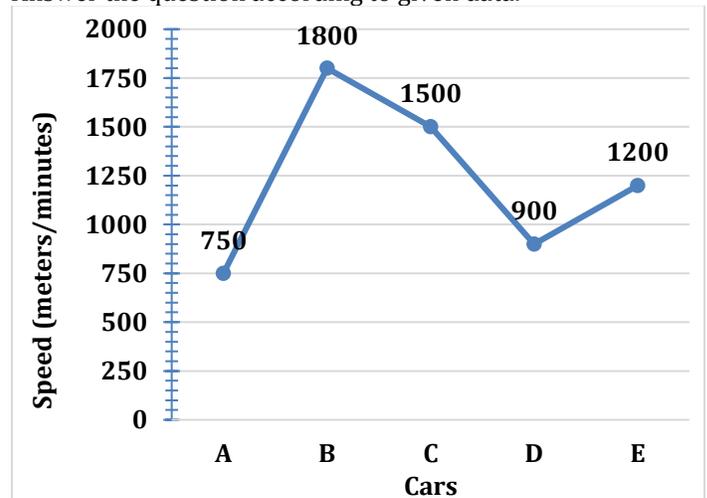
**Q9.** If difference between passed boys and passed girls from P is 600 and total boys passed from S is 1350, then find total failed students from S is what percent more than total students participated from school P?

- (a) 15%
- (b) 10%
- (c) 12%
- (d) 5%
- (e) 20%

**Q10.** Total students participated in exam from school R is 50% more than that of from P and difference between passed boys from both the school is 2220, then find average number of girls passed from both the schools?

- (a) 1100
- (b) 1000
- (c) 1390
- (d) 900
- (e) 1200

**Directions (11-15):** Line graph shows usual average speed of five cars A, B, C, D and E. Speed is given in meter/minute. Answer the question according to given data.



**Q11.** Car D started from Lucknow to Delhi at its usual speed for first half distance, but after that due to some problem in engine car travel at  $\frac{4}{6}$  of its usual speed. If car completed whole journey in 10 hr, then find the total distance between Lucknow and Delhi?

- (a) 440 km
- (b) 432 km
- (c) 442 km
- (d) 450 km
- (e) 452 km

**Q12.** Car C starts from Pune and at the same time Car A starts from Mumbai towards each other, and at the time both meet one car has traveled 180 km more than other car. Find the distance between Pune and Mumbai?

- (a) 540 km
- (b) 520 km
- (c) 500 km
- (d) 520 km
- (e) 640 km

**Q13.** Rajeev go to his village from the city by car B and return by car C. If his total travelling time is of 11 hours, then find the distance between city and his village?

- (a) 500 km
- (b) 510 km
- (c) 520 km
- (d) 540 km
- (e) 1080 km

**Q14.** Car E travels at its usual speed between city X and Y and take 480 minutes to complete total distance. But at the time of returning car E decreases its speed by 12 km/hr. Then find time taken by car E (in minutes) returning from city Y to X?

- (a) 526 minutes
- (b) 530 minutes
- (c) 576 minutes
- (d) 550 minutes
- (e) 612 minutes

**Q15.** The distance between Delhi and Gorakhpur is 762 km. Car E starts at 4 pm from Delhi towards Gorakhpur at a given speed. Another car C starts at 3.20 pm from Gorakhpur towards Delhi at a given speed. How far from Delhi both cars meet and at what time?

- (a) 8:20 pm, 312 km
- (b) 7:20 pm, 290 km
- (c) 8:10 pm, 390 km
- (d) 6:20 pm, 350 km
- (e) 9:20 pm, 480 km

**Direction (16-17):** In the following wrong number series a term is wrong as per pattern followed in the series. You have to find that wrong term and term which should replace that wrong term is your answer. (You have to mark correct term as per series not the wrong term mentioned in series)

**Q16.** 32, 48, 80, 112, 176, 208, 272

- (a) 36
- (b) 116
- (c) 206
- (d) 276
- (e) Series is right no need to replace any number

**Q17.** 12, 70, 348, 1390, 4168, 8332, 8332

- (a) None of the given option will replace the wrong number
- (b) 8334
- (c) 4172
- (d) 1392
- (e) 350

**Direction (18-20):** What will come in the place of (A), (B) & (C) in second (II) number series. (II) number series follows the same pattern as pattern of first (I) number series:

**Q18. Series I** – 2.4, 4, 7.2, 12, 18.4, 26.4, 36

**Series II** – (A), 20, 23.2, 28, (B), 42.4, (C)

- (a) 18.4, 34.4, 54
- (b) 18.4, 36, 52
- (c) 18.4, 34.4, 52
- (d) 18.4, 34.4, 56
- (e) 19.4, 34.4, 52

**Q19. Series I** – 123, 171, 227, 291, 363, 443, 531

**Series II** – (A), (B), 402, 486, (C), 678, 786

- (a) 258, 326, 580
- (b) 258, 326, 576
- (c) 256, 326, 578
- (d) 258, 324, 578
- (e) 258, 326, 578

**Q20. Series I** – 20, 1300, 2100, 2660, 3100, 3480, 3830

**Series II** – (A), 1600, 2400, (B), 3400, 3780, (C)

- (a) 320, 2960, 4130
- (b) 280, 2840, 4250
- (c) 320, 2960, 4180
- (d) 280, 2840, 4200
- (e) 320, 2960, 4050

**Directions (21-25) :** An exam consists of 100 questions among 3 sections i.e. A, B and C. Section C have 32 questions and section A and B have equal number of questions. For each correct answer a student is awarded 3 marks and 1 mark is deducted for every wrong answer. Each section has 3 questions for which there is no negative marking on wrong attempt and 0.50 marks are deducted for every unattempted question.

Amar and Prem appeared for same exam, Amar attempted total 75 questions, while Prem attempted 80% of total questions attempted by Amar and 90% of his questions were correct. Both of them attempted all the question which do not have negative marking.

**Q21.** What is the smallest range of marks obtained by Amar, if 80% of his attempted questions were correct?

- (a) 165-174
- (b) 165-174
- (c) 152.5-161.5
- (d) 165-180
- (e) 155-165

**Q22.** If only 3 non-negative marking questions out of 9 were wrong for Prem. Find the score of Prem.

- (a) 122
- (b) 102
- (c) 159
- (d) 139
- (e) None of these

**Q23.** Prem attempted all the questions of section A, which were all correct and 50% of questions section C in which 6 were incorrect carrying negative marking. Find the difference between his score from section C and section B.

- (a) 03
- (b) 02
- (c) 14
- (d) 06
- (e) None of these

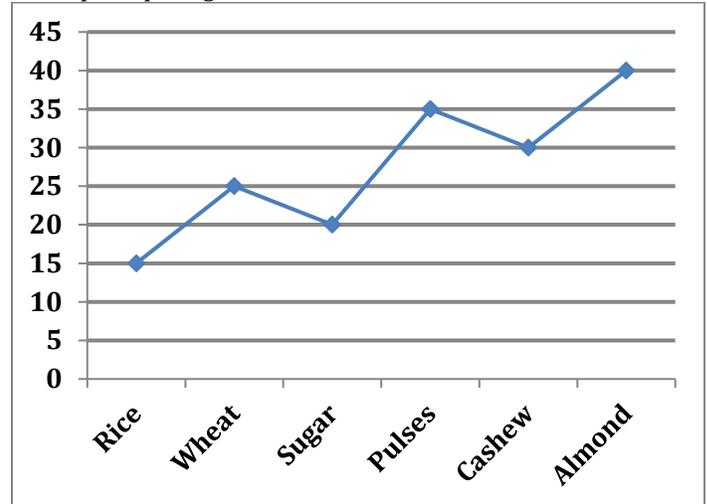
**Q24.** All the non-negative marking questions were correct for Amar and only non-negative marking questions were wrong for Prem. What is the difference between their score, If 80% of questions attempted by Amar were correct.

- (a) 10.5
- (b) 16.5
- (c) 54.5
- (d) 36.5
- (e) 17.5

**Q25.** If Amar scored 108.5 and 5 of his non-negative marking questions were correct. What is the total number of his correct questions?

- (a) 42
- (b) 53
- (c) 47
- (d) 49
- (e) None of these

**Directions (26-30):** Study the graph and table given below and answer the following questions. The line graph shows the listed price per kg of various items in a wholesale store.



The table given below shows the amount of items bought by a retailer from the wholesale store. The table also shows the discount % offered by the wholesaler on the list price and total cost incurred by the retailer.

Items	Quantity (in kgs)	Discount (in %)	Total (in Rs.)
Rice	20	10	-
Wheat	30	-	675
Sugar	15	-	240
Pulses	18	30	-
Cashew	40	-	900
Almond	25	15	-

**Q26.** Calculate the profit earned by retailer on selling 20 kgs of wheat purchased by him to a customer at a discount of 5% on the listed price ?

- (a) Rs. 25
- (b) Rs. 45
- (c) Rs. 75
- (d) Rs. 50
- (e) None of these

**Q27.** The retailer sold all the cashew bought by him to a customer at a price 25% more than the listed price. Calculate his overall profit percent.

- (a) 33.33%
- (b) 66.66%
- (c) 55.55%
- (d) 42.64%
- (e) 77.77%

**Q28.** If 50% of the rice bought by the retailer got spoiled, then at what price/kg must he sell the remaining amount of rice to be at a situation of no loss-no gain ?

- (a) Rs. 40
- (b) Rs. 19
- (c) Rs. 27
- (d) Rs. 22
- (e) None of these

**Q29.** The retailer sold all the pulses he bought at a price that is 30% more than the listed price and offered 2 kgs of Almond free with it. Find overall profit% of the retailer in this bargain? (approximate)

- (a) 50%
- (b) 40%
- (c) 35%
- (d) 61%
- (e) 45%

**Q30.** The retailer mixed 6 kgs. of impurity (free of cost) with all the sugar he had and sold the mixture at a discount which is 25% less than that discount (in percentage) offered by the wholesaler. Find the profit % on the sale of all of the amount of this mixture?

- (a) 52.50%
- (b) 46.15%
- (c) 48.75%
- (d) 57.50%
- (e) None of these

**Direction (31-35):** Table given below shows data regarding number of people applied for loan under 'PM Mudra Yojna' from five different villages. Read the data carefully and answer the questions.

Village	Number of people applied for loan	Percentage of people who get loan out of total number of people applied for loan	Percentage of male who get loan out of total people who get loan	Ratio of female who do not get loan to female who get loan
P	7200	$66\frac{2}{3}\%$	65%	10 : 21
Q	8000	60%	75%	3 : 5
R	8800	$81\frac{9}{11}\%$	82%	4 : 9
S	10000	72%	76%	16 : 27
T	9600	68.75%	80%	8 : 11

**Q31.** What is the difference between number of males applied for loan from village P and village T?

- (a) 2600
- (b) 2200
- (c) 2400
- (d) 3000
- (e) 2000

**Q32.** Total females who do not get loan from village S is what percent more or less than total females who do not get loan from village Q?

- (a)  $40\frac{2}{9}\%$
- (b)  $44\frac{2}{9}\%$
- (c)  $46\frac{2}{3}\%$
- (d)  $48\frac{2}{3}\%$
- (e)  $42\frac{2}{9}\%$

**Q33.** What is the ratio of total males who do not get loan from village Q to total males who do not get loan from village S?

- (a) 113:111
- (b) 115: 111
- (c) 64: 111
- (d) 155: 111
- (e) 111 : 115

**Q34.** How many females applied for loan from the village where number of males who get loan are second highest among all villages?

- (a) 2772
- (b) 2726
- (c) 2752
- (d) 2742
- (e) 2732

**Q35.** What is the average of number of males who do not get loan from village R and number of females who get loan from village R?

- (a) 1120
- (b) 1140
- (c) 1260
- (d) 1200
- (e) 1160

**Direction (36-40):** Find the wrong number in the following number series given below :

**Q36.** 5, 86, 174, 276, 399, 558, 736

- (a) 276
- (b) 736
- (c) 558
- (d) 86
- (e) 399

**Q37.** 9, 4.5, 6.5, 14, 57, 457, 7313

- (a) 4.5
- (b) 57
- (c) 457
- (d) 9
- (e) 7313

**Q38.** 1728, 998, 1511, 1167, 1384, 1260, 1323

- (a) 998
- (b) 1511
- (c) 1323
- (d) 1167
- (e) 1260

**Q39.** 2.5, 60, 720, 4320, 12960, 19480, 14580

- (a) 720
- (b) 4320
- (c) 12960
- (d) 19480
- (e) 14580

**Q40.** 11.5, 34, 58, 85, 116.5, 154, 200

- (a) 200
- (b) 85
- (c) 116.5
- (d) 154
- (e) 34

**Q41.** Working alone, A can complete a task in 'a' days and B in 'b' days. They take turns in doing the task with each working 2 days at a time. If A starts, they finish the task in exactly 10 days. If B starts, they take half a day more. How long does it take to complete the task if they both work together?

- (a)  $5\frac{1}{3}$  days
- (b)  $5\frac{1}{7}$  days
- (c)  $5\frac{5}{9}$  days
- (d)  $5\frac{5}{11}$  days
- (e) None of these

**Q42.** Bag A contains 'P' green and 18 yellow balls while bag B contains '(P + 2)' green balls and 22 more number of yellow balls than that of in bag A. Probability of selecting a green ball from bag A is  $\frac{1}{12}$  more than probability of selecting a green ball from bag B. Find total number of balls in bag B. (P < 50)

- (a) 48
- (b) 54
- (c) 60
- (d) 84
- (e) 66

**Q43.** Ratio of speed of boat P and Q in still water is 2 : 3. If time taken by boat 'Q' to cover a certain distance in upstream is equal to that of 'P' to cover 60% of that distance in upstream and difference of the distance covered by 'Q' and 'P' in 5hr in downstream is 60km then find ratio of speed of boat 'P' in downstream to 'Q' in upstream?

- (a) 3 : 2
- (b) 1 : 2
- (c) 1 : 1
- (d) 4 : 5
- (e) 5 : 4

**Directions (44-45):** Answer these questions based on the information given below.

6 men complete a piece of work in 12 days. 8 women can complete the same piece of work in 18 days. Whereas 18 children can complete the piece of work in 10 days. 4 men, 12 women and 20 children work together for 2 days, and then only 36 men were to complete the remaining work in x day.

**Q44.** A can do a piece of work in  $10x$  days and B can do the same work in  $20x$  days. They do the work on alternative days starting from A then in how many days A and B can complete the work?

- (a) 11 days
- (b) 12 days
- (c) 13 days
- (d) 14 days
- (e) None of these

**Q45.**  $56x$  soldiers can complete a piece of work in 24 days. In how many days can 42 soldiers complete the same piece of work?

- (a) 32 days
- (b) 24 days
- (c) 16 days
- (d) 48 days
- (e) None of these

**Directions (46-47):** Three friends P, Q and R share an apartment and share the rent equally. The monthly income of R is 25% less than that of Q and Rs.8000 less than that of P. Monthly expenditure of Q on food is Rs.1000 more than that of P and is Rs.1000 less than that of R. After meeting the expenses on rent and food, they save amounts in the ratio 6 : 7 : 4.

**Q46.** If Q saves  $62\frac{1}{2}\%$  of his total monthly income, then how much percent does R save out of his monthly income?

- (a)  $47\frac{13}{21}\%$
- (b)  $48\frac{12}{21}\%$
- (c)  $45\frac{5}{21}\%$
- (d)  $49\frac{11}{21}\%$
- (e) Cannot be determined



**Q47.** If the total amount spent by all the three on food is Rs.27000 and the monthly income of Q is Rs.6000 more than that of P, then what is the monthly rent of the apartment?

- (a) Rs.48000
- (b) Rs.30000
- (c) Rs.24000
- (d) Rs.36000
- (e) Cannot be determined

**Q48.** Selling price of two articles is same and shopkeeper claim to get 20% profit on each article but mistakenly he calculates one profit on selling price. If difference of profit he gets on articles is 8 Rs. then find the selling price?

- (a) Rs.200
- (b) Rs.180
- (c) Rs.160
- (d) Rs.220
- (e) Rs.240

**Q49.** Rs.15000 invested in two schemes each. First scheme offers R% interest on C.I. and second scheme offer R% more of what he gets in first at S.I. If after 2-year difference between interests earned in both scheme is Rs. 600 then find the value of R.

- (a) 24%
- (b) 10%
- (c) 15%
- (d) 20%
- (e) None of these

**Q50.** Sunny and Satish shoot each other 4 and 3 out of every 6 shots respectively. They try to shoot each other in sequences start with Sunny. Find the probability that Satish killed?

- (a)  $\frac{1}{5}$
- (b)  $\frac{2}{5}$
- (c)  $\frac{7}{10}$
- (d)  $\frac{3}{5}$
- (e)  $\frac{4}{5}$

**Directions (51-52):** There are three sections A, B and C in a class. Every section has some boy and some girl students in it. Probability of a girl being selected when one student is selected randomly from section A is  $\frac{2}{5}$ , that from section B is  $\frac{4}{9}$  and that from section C is  $\frac{5}{9}$ .

**Q51.** If the ratio of total number of students in sections A, B and C is 10 : 12 : 9, then what is the probability of a girl being selected when one student is selected randomly from the students from all the three sections together?

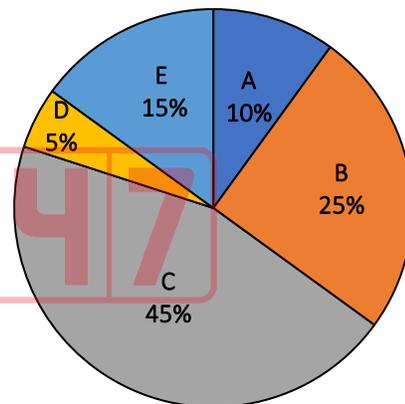
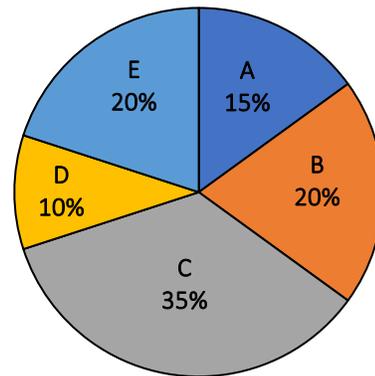
- (a)  $\frac{14}{31}$
- (b)  $\frac{11}{23}$
- (c)  $\frac{13}{31}$
- (d)  $\frac{43}{93}$
- (e) Cannot be determined

**Q52.** If the number of girls in sections A is same as the number of boys in section C, then what is the ratio of number of boys in section A to the number of boys in section C?

- (a) 2 : 3
- (b) 3 : 4
- (c) 3 : 2
- (d) 4 : 3
- (e) None of these

**Directions (53-55):** Given below are two pie charts. Pie chart (1) shows the percentage distribution of milk in five vessels out of the total milk in these five vessels. Pie chart (2) shows the percentage distribution of water in same five vessels out of total quantity of water in these five vessels.

(1) (2)



**Note:** Ratio of total milk to total water in these five containers is 2 : 1.

**Q53.** A shopkeeper pours the mixture of vessel A and B into another vessel F. Vessel F contains water only which is equal to 25% of water of vessel B. If shopkeeper professes to sell the whole mixture at the cost price of pure milk and cost price for shopkeeper is due to milk only, then find the percentage profit of shopkeeper in selling whole mixture.

- (a)  $58\frac{13}{14}\%$
- (b)  $3\frac{13}{15}\%$
- (c)  $54\frac{13}{15}\%$
- (d)  $53\frac{13}{14}\%$
- (e)  $55\frac{20}{21}\%$

**Q54.** Mixture of vessel A and C are mixed into another vessel M. If 62 liters of the mixture M is taken out and replaced with 17 L of water, the ratio of milk to water in M becomes 6 : 5. Find the quantity of milk in vessel B.

- (a) 60 L
- (b) 20 L
- (c) 40 L
- (d) 45 L
- (e) 50 L

**Q55.** All the contents of mixture from all vessels except C is poured into bigger vessel and from vessel C, only 115 liters of mixture is taken out and poured into bigger vessel, then ratio of milk and water in bigger vessel becomes 9 : 4. Find the total quantity of water in all five vessels.

- (a) 550 L
- (b) 500 L
- (c) 600 L
- (d) 650 L
- (e) 700 L

**Directions (56-60):** The following questions are accompanied by three statements (A), (B), and (C). You have to determine which statement(s) is/are sufficient necessary to answer the questions

**Q56.** A bag contains some balls of red, black and blue colors. 3 balls are drawn randomly from it. What is the probability that the balls drawn are of three different colors?

- A. Ratio of black and blue colored balls is 4 : 5.
  - B. Total number of red and black balls is 5 more than that of blue colored balls.
  - C. Total number of balls in that bag is 35 and probability of selecting blue colored balls is  $\frac{3}{7}$ .
- (a) A and either B or C
  - (b) Any two of them
  - (c) Only A and C together
  - (d) Question can't be answered even after using all the information
  - (e) All statements are required

**Q57.** Find area of a rectangle if its perimeter is equal to the perimeter of a square.

- A. Length and breadth of the rectangle are in the ratio of 4 : 3 and side of a square is half of the sum of length and breadth of that rectangle.
  - B. Sum of the lengths of diagonals of the rectangle is 4m less than thrice of the side of square.
  - C. Area of a square is 784 m<sup>2</sup>
- (a) Only A and B together
  - (b) Only A and C together
  - (c) All the three together
  - (d) Any two of the three together
  - (e) Either A and B together or A and C together

**Q58.** What is the value of a two digit number?

- A. The sum of the number and its square is 25 times the number itself.
  - B. The number obtained after interchanging the digits is greater than the original number by 18.
  - C. The ratio of the value of the number and the sum of the digits of that number is 4 : 1.
- (a) Either A alone or B and C together
  - (b) All the three together
  - (c) Any one of the three
  - (d) All the three together are not sufficient
  - (e) Either A or B alone

**Q59.** What is the selling price of an article if the marked price of that article is 60% above the cost price of that article?

- A. The article is sold at 12% profit and there are two successive discounts of 20% and  $12\frac{1}{2}\%$  on marked price.
  - B. Difference of marked price and the cost price of that article is Rs 480.
  - C. The marked price is Rs.384 more than the selling price of that article.
- (a) Only B and C together
  - (b) Any two of three are sufficient
  - (c) Either A and B together or A and C together
  - (d) Only A and C together
  - (e) All the three together

**Q60.** Three friends A, B and C invested in a scheme. Find the profit share of A?

- A. Investment of A, B and C is in the ratio 9: 12: 10 and share of C in profit is Rs.1800
  - B. A and B invested Rs.8100 and Rs.10800 for 10 months respectively and profit share of B is 100% of the profit share of C.
  - C. A invested Rs 900 more than that of C and investment period of B is 10 months.
- (a) A and B together only
  - (b) Either A and B or A and C
  - (c) Any two of them
  - (d) Either B alone or A and C together
  - (e) Either A and C or B and C

**Directions (61-65):** The following questions are accompanied by three statements A, B and C. You have to determine which statement(s) is/are necessary/sufficient to answer the question.

**Q61.** A shopkeeper sells articles at a certain profit. Find out the amount of profit.

- A. Ratio of the selling price to the cost price of the articles is 5 : 4.
  - B. If the cost price increases by Rs.500, and selling price remains the same, the profit percentage is decrease by  $13\frac{8}{9}$  percentage points.
  - C. If the marked price is kept at Rs.1000 above the cost price and a discount of 15% is given, then the profit percentage is decreased by  $18\frac{3}{4}$  percentage points.
- (a) Only A and B together
  - (b) A and either B or C
  - (c) Only A and C together
  - (d) All statements are required
  - (e) None of these

**Q62.** Rinku borrowed an amount of Rs.5000 each from Milan and Rahul. What is the rate of interest?

**A.** Rinku returned the amount of Rs.5400 after due date to Milan.

**B.** Rinku returned Rs.5900 to Rahul after due date.

**C.** Rinku returned the money to Milan by SI, whereas to Rahul by compound interest.

- (a) Only A and B together are sufficient
- (b) Only B and C together are sufficient
- (c) A, B and C together are necessary
- (d) Either A and B together or B and C together are sufficient
- (e) A, B and C even together are not sufficient

**Q63.** What is the speed of boat in still water?

**A.** The boat can cover 45 km downstream distance in 3 hours.

**B.** Speed of the stream is one-fourth the speed of boat in still water.

**C.** The boat can cover 36 km upstream distance in 4 hours.

- (a) Only (A) and (C) together
- (b) All the three together
- (c) Only (A) and (B) together
- (d) Questions can't be answered even after using all the information
- (e) Any two of the three together

**Q64.** A train crosses another train in 10 sec. Find out the lengths of the trains.

**A.** Ratio between the lengths the of second and first train is 4 : 5.

**B.** Ratio between the speed of first and second trains is 1 : 2.

**C.** The speed of first train is 36 km/hr.

- (a) Only A and B together
- (b) Only B and C together
- (c) Only A and C together
- (d) Questions can't be answered even after using all the information
- (e) None of these

**Q65.** Find the height of an equilateral triangle.

**A.** Perimeter of the triangle is equal to the perimeter of the rectangle whose length and breadth are in the ratio of 5 : 3.

**B.** Perimeter of the square is 48 m, which is twice the perimeter of the triangle.

**C.** Area of the triangle is  $16\sqrt{3}m^2$ .

- (a) Any two of them
- (b) Any of them
- (c) Only C
- (d) Either B or C alone
- (e) A and either B or C

**Directions (66-70):** In the given questions, two quantities are given, one as Quantity I and another as Quantity II. You have to determine relationship between two quantities and choose the appropriate option

**Q66.** In a two-digit number, digit at unit place exceeds, the digit in its tens place by 2 and the product of the required number with the sum of its digit is equal to 144.

**Quantity I:** Value of two digit number

**Quantity II:** 26

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q67. Quantity I :** Days after which A and B meet. A and B set out to meet each other from two places 165 km apart. A travels 15 km the first day, 14 km second day, 13 km the third day and so on, B travels 10 km the first, 12 km the second day, 14 km the third day and so on.

**Quantity II:** Number of days required to complete the whole work if A, B and C can complete a piece of work in 10, 12 and 15 days respectively. A left the work 5 days before the work was completed and B left 2 days after A had left.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q68. Quantity I:** Present age of Randy, if 10 years are subtracted from the present age of Randy, then you would get twelve times of the present age of his grandson Sandy and Sandy is 19 years younger to Sundar whose age is 24.

**Quantity II:** Average age of the remaining persons in the group if average age of group of 14 persons is 27 years and 9 months. Two persons, each 42 years old, left the group.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q69. Quantity I:** Percentage profit earned by the shopkeeper if at the time of selling and purchasing he uses weights 10% less and 20% more per kilogram respectively and professes to all goods at 5% profit.

**Quantity II: 'x' ;** A book was sold for a certain sum and there was a loss of 20%. Had it been sold for Rs 12 more, there would have been a gain of 30%. 'x' would be value of profit percent if the book were sold for Rs 4.8 more than what it was sold for.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q70.** A group consist of 4 couples in which each of the 4 persons have one

**Quantity I :** Number of ways in which they could be arranged in a straight line such that the men and women occupy alternate positions

**Quantity II:** Eight times the number of ways in which they be seated around circular table such that men and women occupy alternate position.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Directions (71-74):** 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.

**Q71.** Find the sum of present age of X & Z?

**I.** Four years ago, average age of X, Y and Z was 16 years while age of X, Y and Z is in arithmetic progression.

**II.** Average of present age of X and Z is same as present age of Y while Y is four years younger than Z.

- (a) Statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the question.
- (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.

**Q72.** Is Rahul meet Prabhat at half of the distance on a circular track (48km) if they both started to move at same time in same direction?

**I.** Speed of Prabhat is 24km/hr more than speed of Rahul.

**II.** Prabhat's speed is 200% more than that of Rahul

- (a) Statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the question.
- (b) Either statement I or statement II by itself is 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) Statement II alone is sufficient to answer the question but statement I alone is not sufficient to answer the question.
- (e) Statements I and II taken together are not sufficient to answer the question.

**Q73.** Find number of yellow balls in a box which contains 3 black balls and 7 red and yellow balls.

**I.** Probability of selecting two yellow balls from the box is  $\frac{2}{15}$

**II.** Probability of selecting one red and black ball is  $\frac{1}{5}$ .

- (a) Statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the question.
- (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.

**Q74.** Find number of pens sold by retailer if he earns total 37.5% profit on selling some pens and some pencils.

**I.** Ratio between pen sold to pencil sold is 2 : 3 while ratio between cost price of pen to pencil is 3 : 2.

**II.** On selling a pen and a pencil, he earns 25% and 50% profit respectively.

- (a) Both the statements taken together are necessary to answer the questions, but neither of the statements alone is sufficient to answer the question.
- (b) Statements I and II taken together are not sufficient to answer the question.
- (c) Statement II alone is sufficient to answer the question but statement I alone is not sufficient to answer the question.
- (d) Statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the question.
- (e) Either statement I or statement II by itself is sufficient to answer the question.

**Directions (75-76):** In the given questions, two quantities are given, one as Quantity I and another as Quantity II. You have to determine relationship between two quantities and choose the appropriate option.

**Q75.** There are three vessel A, B and C. Vessel A contains mixture of milk and water in ratio 3 : 1. Vessel B contains 20 litres of pure water while vessel C contains 30 litres of pure milk. Half of the content of vessel A is first poured into vessel B. Then content of vessel B is poured into vessel C and finally contents of vessel C is poured into vessel A. The final ratio of milk and water in vessel A is 9 : 4.

**Quantity I:** Initial quantity of mixture in vessel A.

**Quantity II:** 80 litres.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q76.** 20 men can complete a work in 12 days. 5 women are as efficient as 3 men. 4 men and 10 women started working and they already worked for 8 days.

**Quantity I:** Additional number of women required to complete the remaining work in 10 days.

**Quantity II:** Additional number of men required to complete the remaining work in either 8 or less than 8 days.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q77. Quantity I** — Time taken by A to complete a work alone if A can complete a work in 5 more days than B while A does the same work in 9 more days than C. If A and B can complete the whole work in same time as time taken by C alone to do the whole work.

**Quantity II** — Time taken by 8 men and 14 women to reap  $\frac{7}{12}$  part of 360 hectare land by working 7 hrs per day if 6 men and 10 women can reap  $\frac{5}{12}$  part of the land in 15 days by working 6 hrs per day. It is also given that work of 2 men is equal to that of 3 women.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q78. Quantity I** — Difference between the speeds of P and Q if 2 places A and B are 60 km apart. P and Q start from A at same time & meet 1<sup>st</sup> time at a place 12 km from B & they reach A after immediate return from B. The speed of slower person is 48 km/hr.

**Quantity II** — Average speed of train if a distance of 600 km is to be covered in 2 parts. In 1<sup>st</sup> phase 120 km is travelled by train and rest by car and it took total of 8 hrs, but if 200 km is covered by train and rest by car it takes 20 min more.

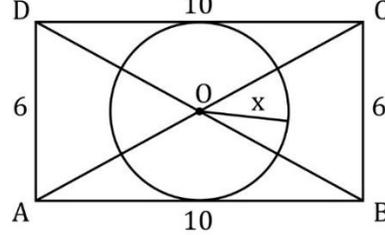
- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q79. Quantity I** — Cost price of motor bike if a man promises to pay the price of the motorbike in 3 equal annual installments of 10,800 Rs. at the compound interest rate of 20% per annum.

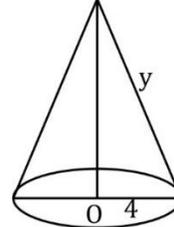
**Quantity II** — 240% of the value of each installment if a man borrowed a sum of Rs. 25220 from a bank and promise to pay the amount in 3 equal installments at the compound interest rate of 5% per annum.

- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q80. Quantity I** — Value of  $x$ , if ABCD is a rectangle and AB= 10 unit, AD= 6 unit.



**Quantity II** — value of  $y$ , if volume of the cone is  $16\pi$  unit<sup>3</sup>  
Radius = 4 unit



- (a) Quantity I > Quantity II
- (b) Quantity I < Quantity II
- (c) Quantity I  $\geq$  Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or No relation

**Q81.** Sandeep bought some chilli powder containing five percent impurities in the form of raw dust. He then mixed pure chilli powder to 2 kg of that impure chilli in such a way that the proportion of impurity now became 4% of total mixture. At what percent should he mark-up the price of this mixture to have an overall profit of 30% ?

- (a) 25%
- (b) 35%
- (c) 20%
- (d) 32%
- (e) None of these

**Q82.** In an examination, there are 100 questions. For each correct answer 4 marks will be awarded, for each wrong answer 2 mark will be deducted for each unattempted question 1 mark will be deducted. If a student scored 320 marks then what could be max number of questions attempted wrong by him?

- (a) 12
- (b) 10
- (c) 14
- (d) 13
- (e) None of these

**Q83.** A and B can do a piece of work in 12 days. B and C together can do the same work in 16 days while B alone can do it in 24 days. Two of them who have same efficiency work on day one and then the third person does the work on day two. If this process goes on till the completion of the work, then find the total no. of days taken for the work to get finished ?

- (a)  $15\frac{3}{4}$  days
- (b)  $17\frac{3}{4}$  days
- (c)  $16\frac{3}{4}$  days
- (d)  $18\frac{3}{4}$  days
- (e) None of these

**Directions (84-85):** Abhishek bought some chairs and tables from a shopkeeper. The marked price of a chair and a table were in the ratio 5 : 8. The shopkeeper gave discounts of 20% and 25% on the chair & the table respectively. The ratio of number of chairs and tables bought by Abhishek is 6 : 5.

**Q84.** If Abhishek sells each chair and table bought by him at discounts of 25% and 20% respectively after marking up the prices of both by 50% and gives one table free for every four chairs bought by a customer and only  $\frac{2}{3}$ rd of the total chairs are sold in bunch of four chairs, then what is the net profit/loss % made by Abhishek after selling all of the items which he bought from the shopkeeper?

- (a)  $6\frac{2}{3}\%$
- (b)  $3\frac{1}{3}\%$
- (c)  $2\frac{1}{2}\%$
- (d)  $4\frac{1}{4}\%$
- (e) None of these

**Q85.** If the marked price of a table set by the shopkeeper was Rs.300 more than that of a chair and the total expenditure made by Abhishek in purchasing the chairs and table from the shopkeeper was Rs.108000, then how many chairs were purchased by Abhishek?

- (a) 150
- (b) 60
- (c) 120
- (d) 90
- (e) None of these

**Directions (86-87):** A team of miners planned to mine 1800 tons of ore during a certain number of days. Due to technical difficulties, in one-third of the planned number of days, the team was able to achieve an output of 20 tons of ore less per day than the planned output. To make up for this, the team overachieved for the rest of the days by 20 tons. The end result was that the team completed the task one day ahead of time.

**Q86.** How many tons of ore did the team initially plan to mine per day?

- (a) 50
- (b) 100
- (c) 150
- (d) 200
- (e) 250

**Q87.** To complete the task two days before the planned date, how many more tons of ore should the team mine per day after mining the planned tons of ores till one-third of the planned no. of days?

- (a) 25
- (b) 30
- (c) 20
- (d) 15
- (e) None of these

**Direction (88-89)-** In a school there are a total of 50 students in class X, who are divided into three sections A, B and C. A and B have an equal number of students. All the students of the class wrote a test. The average marks obtained by the students of sections A and B together is 52.5. The average marks obtained by the students of sections A and C together is 60. The average marks obtained by the students of sections B and C together is 70. The average marks obtained by the students of sections A, B and C together is 60.

**Q88.** How many students are there in section C?

- (a) 10
- (b) 20
- (c) 15
- (d) Cannot be determined
- (e) None of these

**Q89.** How many students are there in all of the three sections?

- (a) 40
- (b) 30
- (c) 45
- (d) Cannot be determined
- (e) None of these

**Q90.** Ratio of length and speed of two trains (smaller: longer) are 7: 8 and 4: 3 respectively. Time taken by both trains to cross each other while running in opposite directions is  $12\frac{6}{7}$ sec and time taken by smaller train to cross a platform having length 100 m less than the smaller train is 16 sec. Find time taken by longer train to cross that platform?

- (a)  $22\frac{1}{2}$  sec
- (b)  $23\frac{1}{3}$  sec
- (c)  $21\frac{2}{3}$  sec
- (d) 20 sec
- (e) None of the given options

**Directions (91-93):** 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.

**Q91.** What is volume of cone?

**I.** Radius of cone is 3 cm less than side of square, whose area is 576 cm<sup>2</sup>.

**II.** Height of cone is 7.5 cm more than radius of circle, which circumference is 66 cm.

**Q92.** What is rate of interest?

**I.** A man invested an amount for three years on simple interest and gets a total amount, which is 137.5% of invested amount.

**II.** Amir invested Rs. 9600 on simple interest and gets a total amount of Rs.13200 after three years.

**Q93.** The ratio between length of two trains is 9 : 8. What will be difference between lengths of both trains?

**I.** Speed of larger train and smaller train is 72 km/hr and 90 km/hr respectively. Both trains cross each other in  $\frac{68}{9}$  sec running in opposite direction.

**II.** Speed of smaller train is 90 km/hr and it cross a pole in 6.4 sec.

**Directions (94-96):** In the given questions, two quantities are given, one as 'Quantity I' and another as 'Quantity II'. You have to determine relationship between two quantities and choose the appropriate option:

**Q94. Quantity I** – A bag contains five red balls, six green balls, 'a' yellow balls & 'b' blue balls. Probability of drawing one yellow ball is  $\frac{1}{6}$ , while probability of drawing one blue ball is  $\frac{2}{9}$ . If two balls are drawn from bag without replacing, then find probability that one of them is red and other is yellow.

**Quantity II** – A bag contains dices only in three colors, eight green color dice, 'x' blue color dice and 'y' yellow color dice. Probability of drawing one blue dice is  $\frac{7}{20}$ , while probability of drawing one yellow dice is  $\frac{1}{4}$ . If two dices drawn at random without replacement, then find probability that one of them is blue and the other is green.

(a) Quantity I > Quantity II

(b) Quantity I < Quantity II

(c) Quantity I ≥ Quantity II

(d) Quantity I ≤ Quantity II

(e) Quantity I = Quantity II or no relation

**Q95. Quantity I** – A cylindrical vessel with radius and height of 17.5 cm and 18 cm respectively is filled upto 80% of its capacity with milk. If total milk from cylindrical vessel transferred into 30 cuboidal vessels whose length and breadth is 7 cm & 3 cm respectively. Find height of each cuboidal vessel?

**Quantity II** – Breadth of a rectangle is 18 cm and ratio between length of rectangle and side of square is 12 : 11. If perimeter of square is 4 cm more than perimeter of rectangle. Find side of square.

(a) Quantity I > Quantity II

(b) Quantity I < Quantity II

(c) Quantity I ≥ Quantity II

(d) Quantity I ≤ Quantity II

(e) Quantity I = Quantity II or no relation

**Q96. Quantity I** – A boat takes double time in covering same distance in upstream as compared to downstream, if boat covers 96 km in downstream and 72 upstream in total 20 hours. Find time taken by boat to cover 240 km in downstream.

**Quantity II** – Distance between point A and point B is 720 km. A car covered  $\frac{1}{3}$ rd of distance with its usual speed and remaining with 20% increased speed, if car takes total 10 hours 40 minutes to cover total distance, then find in what time car will cover a distance of 1200 km with its usual speed.

(a) Quantity I > Quantity II

(b) Quantity I < Quantity II

(c) Quantity I ≥ Quantity II

(d) Quantity I ≤ Quantity II

(e) Quantity I = Quantity II or no relation

**Q97.** A bank offers SI of 10% on principal amount below Rs.5000 otherwise 20%. A man invested Rs. A for 3 years. What is the value of A?

(A) If he had submitted Rs. 3000 more, he will get an interest of Rs. 900 more.

(B) If he had submitted Rs. 4000 more, he will get an interest of Rs. 2400 more.

(C) Value of A is multiple of 500.

(a) Either A and B or B and C are sufficient to answer the question

(b) Either A and B or A and C are sufficient to answer the question

(c) Either A and C or B and C are sufficient to answer the question

(d) A, B and C together are sufficient to answer the question

(e) All of the statements together are not sufficient to answer the question.

**Q98.** A man has two items A and B. What is the selling price of item B?

(A) The amount obtained after selling 4 of item A and 1 of item B is Rs. 70. From this amount he either could buy 7 of item A or 1 of item A with 4 of item B.

(B) Profit earned on selling 1 of item B is Rs. 3 and profit % earned on selling 1 of item A is 30 %. Selling price and cost price of item B are Rs. 5 greater than that of item A respectively.

(C) Ratio of profit % earned on A and B is 3 : 2 and ratio of their cost price is 2 : 3 respectively. All profit %, cost price and selling price have integer value.

(a) Either A and B or B and C are sufficient to answer the question

(b) Either A and B or A and C are sufficient to answer the question

(c) Either A and C or B and C are sufficient to answer the question

(d) A, B and C together are sufficient to answer the question

(e) Either only B or A and C together are sufficient to answer the question

**Q99.** Is  $|a \times b| \geq 10$ ?

- (A)  $a + b = -3$   
 (B)  $a \times b < 0$   
 (C)  $a + 2.5b = 0$  and both  $a$  &  $b$  are integers  
 (a) Only statement 'A' alone is sufficient to answer the question  
 (b) Only statement 'B' alone is sufficient to answer the question  
 (c) Only statement 'C' alone is sufficient to answer the question  
 (d) Any of two statements are sufficient to answer the question  
 (e) All three together are sufficient to answer the question

**Q100.** Three friends Sonu, Monu and Jonu live together. Age of two of them is same. What is the age of Monu?

- (A) Average age of all of them together is 32 years, 4 years lesser than age of Sonu.  
 (B) Age of Monu is  $33\frac{1}{3}\%$  lesser than age of Jonu and age of Monu is 8 years lesser than the average age of all three.  
 (C) Average age of 2 of them is 2 years lesser than average age of all three together. Monu is youngest among them.  
 (a) Either A or B alone is sufficient to answer the question  
 (b) Either B or C alone is sufficient to answer the question  
 (c) Either A or C alone is sufficient to answer the question  
 (d) Any of the two statements are sufficient to answer the question  
 (e) Either only A or B and C together is sufficient to answer the question

**Directions (101-105):** Given below the table shows types of interest offered by five banks, principal amount, time of period and rate of interest. Some of the data is missing. Calculate that according to information given in questions.

Bank	Type of interest	Principle (Rs)	Time (year)	Rate	Amount (Rs)
ICICI	Compound	--	--	15%	--
SBI	Simple	--	4	--	26250
YES	Compound	20000	3	10%	--
UCO	Compound	--	2	--	29160
IDBI	Simple	10000	--	6%	-

**Q101.** If the ratio of interest rate of IDBI to that of UCO is 3: 4, then find the difference between principle invested in UCO bank and amount obtained from IDBI, if time period for both banks is same?

- (a) 13800 Rs  
 (b) 12800 Rs  
 (c) 11800 Rs  
 (d) 13600 Rs  
 (e) 13900 Rs.

**Q102.** If rate of interest offered by SBI and Yes bank is same. Then find principle invested in SBI is approximately what percent of amount obtained from YES bank?

- (a) 52%  
 (b) 59%  
 (c) 70%  
 (d) 65%  
 (e) 78%

**Q103.** What is amount of interest obtained from ICICI bank, if ratio of principle invested in ICICI bank to principal invested in Yes bank is 7 : 5 and time period is one year less for ICICI bank than time period of YES bank?

- (a) 9020 Rs  
 (b) 9030 Rs  
 (c) 8030 Rs  
 (d) 7030 R  
 (e) 9080 Rs.

**Q104.** Principle invested in ICICI is 3000 more than principle invested in UCO bank and both invested for same period of time and UCO bank offered 8% rate of interest annually. If amount obtained from ICICI is Rs. 32870 more than interest obtained from UCO bank then find the principle invested in UCO bank and ICICI bank?

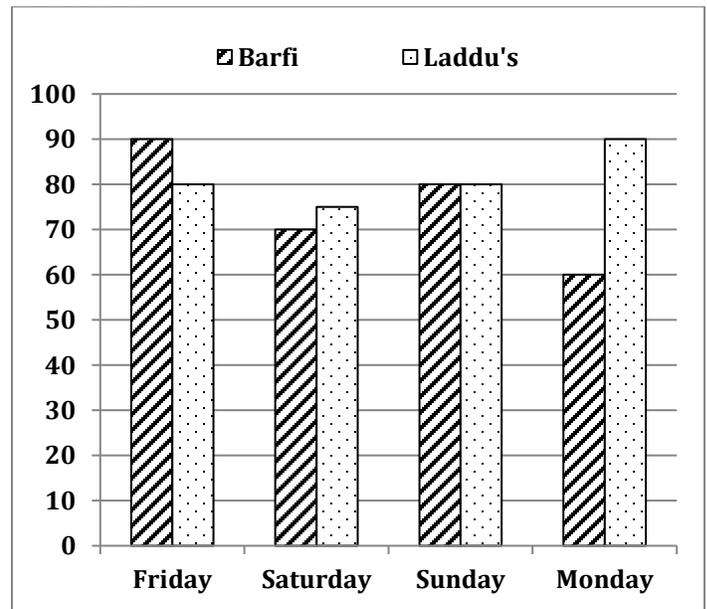
- (a) Rs 25000 & Rs 27000  
 (b) Rs 18000 & Rs 16000  
 (c) Rs 22000 & Rs 20000  
 (d) Rs 25000 & Rs 28000  
 (e) Rs 24000 & Rs. 28000

**Q105.** If ratio between rate of interest offered by SBI bank to IDBI bank is 5 : 3 and ratio between time period is 2 : 1 respectively, then find the sum of principle invested in SBI bank and amount obtained from IDBI bank?

- (a) 27850 Rs  
 (b) 28850 Rs  
 (c) 29950 Rs  
 (d) 27950 Rs  
 (e) 31950 Rs.

**Directions (106-110):** The bar graph shows % of sweets sold by a famous shop out of the total sweets that he prepared. Answer the questions based on this information.

**Note:** All the units of sweets are given in KG's unless mentioned.



**Q106.** Shopkeeper prepared  $66\frac{2}{3}\%$  more 'Laddu' on Sunday than that of Saturday. Total number of Barfi prepared on Sunday and Saturday are equal to total number of Laddu prepared in these two days. Barfi prepared on both of days are equal in quantity then find number of Laddu that remained unsold on Sunday, given that difference between total sold Barfi to total sold Laddu in these two days is 100kg.

- (a) 2400
- (b) 1200
- (c) 900
- (d) 1600
- (e) None of these

**Q107.** Ratio of Laddu prepared on Friday and Laddu sold on Monday together to total number of Laddu prepared on Friday and Monday is 113 : 120. He earns profit of Rs. 20/kg on selling Laddu and no loss on unsold Laddu. If total profit earned on Monday is Rs. 11040 more than that of Friday on selling Laddu then find quantity of Laddu prepared by him on Monday.

- (a) 1680 kg
- (b) 1600 kg
- (c) 1800 kg
- (d) 1512 kg
- (e) 1200 kg

**Q108.** Quantity of Laddu sold on Friday is equal to quantity of Barfi sold on Monday. Calculate the quantity of Barfis prepared on Friday, if he prepared 80 kg more Laddu than Barfi on each day(Friday and Monday) and Barfi's prepared on Friday is 30% less than Barfi's prepared on Monday.

- (a) 1000 kg
- (b) 1600 kg
- (c) 1120 kg
- (d) 1200 kg
- (e) 1680 kg

**Q109.** If he earns a profit of Rs. 10/kg on selling each sweets and loss of Rs. 10/800 gm on unsold items. Find his approximate profit % on Saturday, if it cost Rs. 200/kg to prepare each sweets and ratio of Laddu prepared to Barfi prepared is 5 : 4 on Saturday.

- (a) 2%
- (b) 5%
- (c) 10%
- (d) 12%
- (e) can't be determined

**Q110.** Find the approximate average % of sweets sold on Saturday, Sunday and Monday together if shopkeeper prepared same quantity of Barfi on these days and ratio of Barfi to laddu prepared in these 3 days is 4 : 3, 4 : 5 and 20 : 21 respectively.

- (a) 85
- (b) 76
- (c) 60
- (d) 68
- (e) 65

**Directions (111-112):** The daily work of two men is equal to that of 3 women or that of 4 youngsters. By employing 14 men, 12 women, and 12 youngsters a certain work can be finished in 24 days.

**Q111.** If it is required to finish it in 14 days and as an additional labor, only men are available, how many of them will be required?

- (a) 20
- (b) 30
- (c) 25
- (d) 15
- (e) None of these

**Q112.** If it is required to finish it in  $19\frac{1}{5}$  days and as an additional labor, only women and youngsters are available in pairs, how many pairs of women and youngsters will be required?

- (a) 7
- (b) 5
- (c) 6
- (d) 8
- (e) None of these

**Directions (113-115):** A article is mark up above cost price such that markup percent is double of the profit percent. If discount is 12.5%, then profit percent increased by  $33\frac{1}{3}\%$ .

**Q113.** On selling 20 such article, profit is Rs.300. Find the M.P. of each article.

- (a) Rs.60
- (b) Rs.160
- (c) Rs.80
- (d) Rs.240
- (e) Rs.72

**Q114.** If shopkeeper cheat his customer by giving 20% less quantity and reducing value of discount percentage by 20% then find the new profit percent.

- (a) 60%
- (b) 75%
- (c) 62.5%
- (d) 80%
- (e) 70%



**Q115.** Initially shopkeeper have 20 articles. Out of 20, 7 articles damaged and remains unsold. Marked Price should be labeled by how much percent more than cost price so that his overall profit does not change neither his discount percentage.

- (a) 156%
- (b) 146%
- (c) 136%
- (d) 120%
- (e) 125%

**Direction (116–120):** Data given below shows farmers producing three types of grains. Study the data carefully and answer the following questions.

Farmers producing CORN is 20% more than farmers producing RICE while number of farmers producing only CORN and only RICE is same. Ratio between farmers producing only WHEAT to farmers producing rice is 3 : 5. Farmers producing WHEAT and CORN but not RICE is twice of farmers producing only WHEAT and RICE. Number of farmers producing only RICE is half of number of farmers producing RICE.

Number of farmers producing RICE and CORN is 12% of total number of farmers while number of farmers producing CORN is 48% of total number of farmers. Number of farmers producing all three grains is 16, which is 8 less than number of farmers producing only RICE and WHEAT but not CORN.

**Q116.** Find number of farmers producing at least two types of grain are what percent of number of farmers producing at most one type of grain?

- (a) 37.5%
- (b) 43.75%
- (c) 50%
- (d) 56.25%
- (e) 62.5%

**Q117.** Number of farmers producing Sugarcane is 25% more than number of farmers producing WHEAT and CORN. Find number of farmers producing Sugarcane?

- (a) 80
- (b) 50
- (c) 60
- (d) 45
- (e) None of the given options

**Q118.** Find what percent of farmers producing WHEAT out of total farmers?

- (a) 24%
- (b)  $56\frac{1}{3}\%$
- (c)  $53\frac{1}{3}\%$
- (d) 40%
- (e) 48%

**Q119.** Find total number of farmers producing either only RICE or only WHEAT?

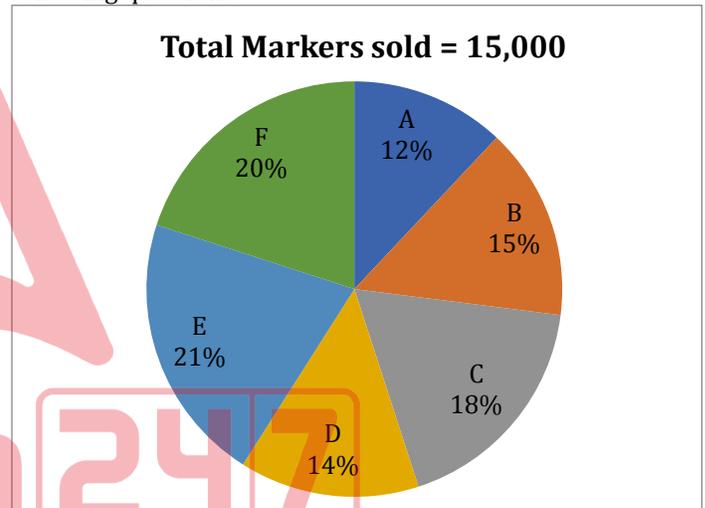
- (a) 120
- (b) 132
- (c) 280
- (d) None of the given options
- (e) 138

**Q120.** Find the ratio between number of farmers producing only two types of grains to farmers producing all three grains?

- (a) 27 : 4
- (b) None of the given options
- (c) 23 : 16
- (d) 23 : 8
- (e) 23 : 4

**Directions (121-125):** Pie-chart shown below shows percentages of markers sold by six sellers.

Table shows ratio three type of marker out of total markers sold by different sellers. Study the data carefully and solve the following questions.



Type of markers	X	Y	Z
A	4	3	2
B	3	4	3
C	9	7	9
D	6	4	5
E	3	2	1
F	4	5	3

**Q121.** Seller 'A' fixed his selling price of markers at 40% above the cost price but at the time of selling he gave 40%, 20% and 10% discount on X, Y and Z respectively. Find the total profit or loss percentage if cost price of all the markers is same?

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

**Q122.** Seller 'E' and 'F' keep the S.P. of each X, Y and Z markers same and total S.P. of X, Y, Z sold by E is Rs.47250. Find the total S.P. of all the markers sold by F if E kept the SP of each X, Y, Z marker in the ratio 1 : 1.5 : 3.

- (a) Rs.48250
- (b) Rs.51250
- (c) Rs.54520
- (d) Rs.57520
- (e) Rs.45500

**Q123.** Seller 'C' sold all the markers for a certain sum and there was a loss of  $11\frac{1}{9}\%$ . Had it been sold for Rs.9000 more, there would have been a gain of  $11\frac{1}{9}\%$ . If seller 'C' wants to earn 20% profit, then what would be the total S.P. of Y marker if S.P. of each marker is in the ratio 2 : 3 : 4 respectively.

- (a) Rs.13680
- (b) Rs.12680
- (c) Rs.13608
- (d) Rs.12608
- (e) None of these

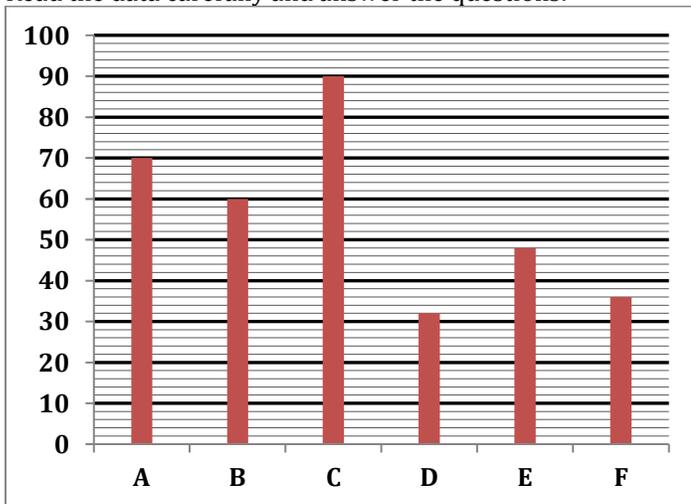
**Q124.** There are two customers, Satish and Veer. Seller 'B' sells 60% of X marker to Satish, and remaining to Veer, B also sells 40% of Y marker to Satish and remaining to veer. Find the S.P. of each Y marker if Satish and Veer pays Rs.8370 and Rs.9180 for X and Y marker respectively.

- (a) Rs.10
- (b) Rs.12
- (c) Rs.14
- (d) Rs.16
- (e) Rs.18

**Q125.** Out of six sellers, which seller sells maximum number of X type of marker?

- (a) B
- (b) C
- (c) D
- (d) F
- (e) None of these

**Direction (126 - 130):** Given below bar graph show number of hours taken by six persons to complete a task individually. Read the data carefully and answer the questions:



**Q126.** A, C and D start working together but due to bad health of A and D their efficiency decreased by  $12\frac{1}{2}\%$  and  $33\frac{1}{3}\%$  respectively. Then find in how many hours total task will be completed by these three?

- (a)  $22\frac{1}{2}$  hours
- (b)  $10\frac{1}{4}$  hours
- (c)  $12\frac{1}{4}$  hours
- (d)  $9\frac{1}{4}$  hours
- (e)  $13\frac{1}{4}$  hours

**Q127.** E and F start working together on another task, while F work with 25% less efficiency. E and F work for y hours and remaining work complete by B in (y + 1) hours, if ratio of work done by E and F together and by B alone is 2 : 1, then in how many hours A will complete same task alone?

- (a)  $15\frac{1}{2}$  hours
- (b)  $13\frac{1}{2}$  hours
- (c)  $17\frac{1}{2}$  hours
- (d)  $11\frac{1}{2}$  hours
- (e)  $9\frac{1}{2}$  hours

**Q128.** If G can do 50 % more work in one hour as A can do in one hour, while H can do 25% less work in one hour as B can do in one hour. C start working alone and after some time he left the task, if remaining task complete by G & H together in 23.5 hours more than C work alone. Then find total time in which work completed?

- (a) 32.5 hours
- (b) 30.5 hours
- (c) 28.5 hours
- (d) 22.5 hours
- (e) 16.5 hours

**Q129.** A, B, E and F work together in first hour, while C & D together destroy the task (with same efficiency of completing the task) in second hour. If this rotation continue till the total work is completed. Find how many hours required to complete the task?

- (a)  $55\frac{17}{25}$  hours
- (b)  $45\frac{17}{25}$  hours
- (c)  $40\frac{177}{245}$  hours
- (d)  $50\frac{705}{802}$  hours
- (e)  $59\frac{705}{802}$  hours

**Q130.** If E work for 12 hours, B work for 35 hours, then find in how many hours remaining work will be completed by C?

- (a) 8 hours
- (b) 10 hours
- (c) 12 hours
- (d) 15 hours
- (e) 20 hours

**Directions (131-135):** Table given below shows length of six train, speed of train (meters/minutes), time taken by different trains to cross different platform and length of each platform is also given. Some of the data in table is missing, calculate the missing data and answer the questions according to condition given in questions.

Train	Length of train (m)	Speed (meters/minutes)	Time taken by train to cross platform (sec)	Length of platform (m)
A	---	750	24	---
B	180	---	21.6	---
C	---	2000/3	---	---
D	120	---	---	240
E	300	---	30	---
F	---	1000	---	---

**Q131.** Train A running at its average speed crossed the platform and it takes  $9\frac{9}{11}$  sec to pass a man who is walking at 10 km/hr in the opposite direction to that of train A. Find the length of platform?

- (a) 300 m  
(b) 150 m  
(c) 180 m  
(d) 200 m  
(e) 225 m

**Q132.** Ratio of length of train C to train F is 3 : 5. If running in opposite direction, both train crossed each other in 14.4 sec. then find time taken by train C in crossing a platform which is 50m more than length of train of C. Also find length of train F?

- (a)  $53\frac{1}{2}$  sec, 250m  
(b)  $60\frac{1}{7}$  sec, 200m  
(c)  $63\frac{1}{2}$  sec, 250m  
(d)  $43\frac{1}{2}$  sec, 180m  
(e)  $49\frac{1}{2}$  sec, 225 m

**Q133.** If train B and E crossed their respective platforms and platform lengths are same as their respective train. Then find in what time faster train crossed slower train if they are running in same direction?

- (a) 144 sec  
(b) 134 sec  
(c) 140 sec  
(d) 240 sec  
(e) 225 sec

**Q134.** Ratio of magnitude of time taken by train D in crossing the respective platform to speed of train D (m/s) is 5 : 8. Then find ratio of time taken by train D to train F in crossing a platform whose length is 600 m? (Ratio of length of train D to that of train F is 3:5)

- (a) 5 : 8  
(b) 5 : 6  
(c) 7 : 5  
(d) 2 : 5  
(e) 5 : 3

**Q135.** Two train B and D moving in same direction, if speed of smaller train is 54 km/hr and faster train crossed a man, who sits in smaller train in 24 sec. Then find the speed of faster train in meters/sec?

- (a)  $35\frac{1}{2}$  sec  
(b)  $45\frac{1}{2}$  sec  
(c)  $33\frac{1}{2}$  sec  
(d)  $43\frac{1}{2}$  sec  
(e)  $41\frac{1}{2}$  sec

**Directions (136-140):** Table given below shows number of lectures taken on different days in four different weeks of a month. Study the data carefully and answer the following questions.

	First week	Second week	Third week	Fourth week	Amount paid for one lecture per hour
Lectures on Monday and Tuesday each	8	—	6	9	Rs. 4,000
Lectures on Wednesday and Thursday each	7	5	—	8	Rs. 6,000
Lecture on Friday and Saturday each	6	6	8	10	Rs. 9,000

(i) There are no lectures on Sunday.

(ii) Month = First week + Second week + Third week + Fourth week

**Q136.** A professor gets Rs. 2 lakhs to take all lectures on Monday and Tuesday together in that month. If lectures are of 45-minute, 30-minute, 1 hour 40 minute and 40 minutes in first, second, third and fourth week respectively then find number of lectures taken on Monday of second week?

- (a) 4  
(b) 6  
(c) 3  
(d) 12  
(e) 8

**Q137.** Find amount obtained by a professor who takes lectures in whole fourth week having 40 minutes class on each day of that month.

- (a) 3.48 lakh  
(b) 1.74 lakh  
(c) 2.32 lakh  
(d) 1.16 lakh  
(e) None of these

**Q138.** A professor takes lectures only on Wednesday. Find lectures taken by him on third week is what percent more or less than lectures taken by him on second week if he earns Rs. 1,21,500 by taking 45 minutes lecture on each week of that month.

- (a) 100%
- (b) 60%
- (c) 80%
- (d) 20%
- (e) 40%

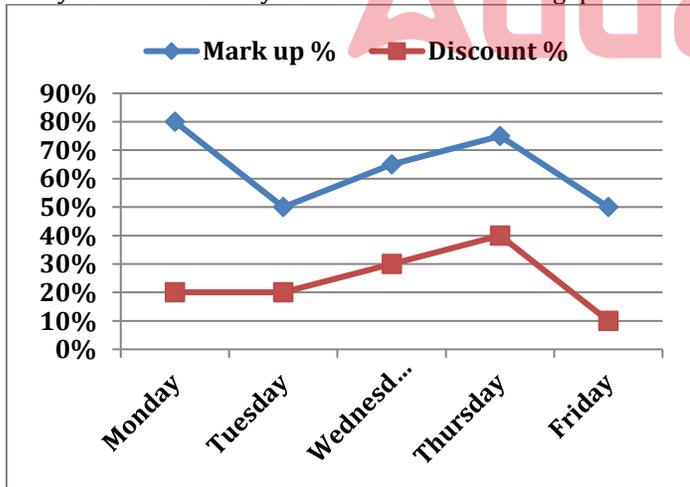
**Q139.** Find the ratio between amount given to professor who takes 45 minutes lecture on Wednesday of second week to professor who takes 40 minutes lecture on Saturday of fourth week.

- (a) 1 : 2
- (b) 3 : 8
- (c) 1 : 3
- (d) 3 : 5
- (e) 8 : 27

**Q140.** Amount given to a professor who takes lecture on whole second week [1 hour each] is 12.5% more than amount given to that professor who takes lecture on whole first week [45 minutes each]. Find numbers of lectures taken on Monday of second week?

- (a) 8
- (b) 4
- (c) 6
- (d) 12
- (e) None of these

**Directions (141-145):** Line chart given below shows markup % above C.P. and discount % given on article X on five different days while table given below shows ratio between mark price of article X to mark price of article Y on these days. Study the data carefully and answer the following questions.



Days	Mark price of X : Mark price of Y
Monday	4 : 5
Tuesday	3 : 4
Wednesday	11 : 14
Thursday	7 : 9
Friday	5 : 7

**Q141.** Ratio between cost price of article X on Monday to Thursday is 4 : 5. Retailer earns Rs 75 profit on selling article X on Thursday. Find profit earned on selling article Y on Monday, if he give 35% discount on marked price of Y while Cost price of article X and Y is same on Monday.

- (a) Rs 465
- (b) Rs 444
- (c) Rs 525
- (d) Rs 555
- (e) Rs. 585

**Q142.** On selling article X and Y on Friday, retailer earns total Rs 1430 profit. If selling price of article Y is Rs. 520 more than selling price of article X and cost price of article X and Y is same, then find discount percent offered on article Y.

- (a)  $33\frac{1}{3}\%$
- (b)  $16\frac{2}{3}\%$
- (c)  $66\frac{2}{3}\%$
- (d) 25%
- (e) 12.5%

**Q143.** Ratio of cost price of article X to article Y on Wednesday is 3 : 4. Retailer earn 26% profit on selling article Y by giving discount of Rs. 1008. Find the difference between selling price of both articles.

- (a) Rs. 900
- (b) Rs. 540
- (c) Rs. 360
- (d) Rs. 1080
- (e) Rs. 1260

**Q144.** Find profit percentage earned by retailer on selling article Y on Tuesday at 40% discount if cost price of article Y is 20% less than that of cost price of article X?

- (a) 60%
- (b) 25%
- (c) 50%
- (d) 75%
- (e) 100%

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**Q145.** If profit earned on selling article X on Monday is 176 then find the total profit earned by retailer on selling article X on all five days. It is given that ratio between cost price of article X on respective days starting from Monday to Friday is 1 : 2 : 3 : 4 : 5.

- (a) None of the given as option
- (b) Rs. 1432
- (c) Rs. 1260
- (d) Rs. 1302
- (e) Rs. 1424

**Directions (146-150):** The following information is about the production of bikes by 3 different companies from Monday to Friday in a specific week. Read the information carefully and answer the following question:

The total production by 3 companies on Monday was 540 out of which  $33\frac{1}{3}\%$  bikes were produced by Hero. The number of bikes produced by Bajaj on Monday are less than the bikes produced by Hero on Monday by the same extent as the number of bikes produced by Honda on Monday is more than the bikes produced by Hero on Monday. The difference between bikes produced by Bajaj and Honda on Monday is 40. 150 bikes are produced by Hero on Tuesday, which is 100 less than the bikes produced by the same company on Wednesday. A total of 910 bikes were produced by Hero from Monday to Friday. The ratio between bikes produced by Hero on Thursday to bikes produced by the same company on Friday is 5 : 6.

220 bikes were produced by Bajaj on Tuesday, which is 80 less than the bikes produced by Honda on Wednesday. A total of 570 bikes were produced on Tuesday, which is 76% of the total bikes produced on Wednesday. The number of bikes produced by Honda on Thursday is  $66\frac{2}{3}\%$  more than bikes produced by Hero on the same day. Total 580 bikes were produced on Thursday. The number of bikes produced by Honda on Friday is same as that on Monday. 140 bikes were produced by Bajaj on Friday.

**Q146.** Find the ratio between total bikes produced on Monday to that on Wednesday.

- (a) 18 : 29
- (b) 18 : 25
- (c) 18 : 31
- (d) 3 : 5
- (e) None of these

**Q147.** Find the total number of bikes produced by Bajaj from Monday to Friday.

- (a) 900
- (b) 980
- (c) 950
- (d) 960
- (e) None of these

**Q148.** Find the average number of bikes produced per day by Honda from Monday to Friday. (approximate)

- (a) 250
- (b) 220
- (c) 270
- (d) 240
- (e) 230

**Q149.** On which pair of days out of the following, the number of bikes produced by Hero is the same ?

- (a) Tuesday and Wednesday
- (b) Wednesday and Thursday
- (c) Tuesday and Thursday
- (d) Monday and Wednesday
- (e) Monday and Tuesday

**Q150.** On which day the total number of bikes produced was the maximum ?

- (a) Monday
- (b) Tuesday
- (c) Wednesday
- (d) Thursday
- (e) Friday

**Q151.** Ram spends Rs. 8000 for 4 years in scheme 'A' which offers R% p.a. at S.I. and Rs. 10,000 for 2 years in scheme 'B' which offers R% p.a. at C.I. He got same amount from both schemes. Find value of 'R'.

- I. 20%
- II. 50%
- III. 100%
- (a) Either I or II
- (b) Either I or III
- (c) Either II or III
- (d) Any one of I, II and III
- (e) Only I

**Q152.** A retailer bought some eggs at Rs. 10 each. Out of these, some are rotten, and some are fresh. He sold fresh eggs at 50% profit and rotten eggs at 20% loss. In total he earns 8% profit. Find the probability of selecting one fresh egg from total eggs.

- (a)  $\frac{1}{9}$
- (b)  $\frac{1}{2}$
- (c)  $\frac{4}{5}$
- (d)  $\frac{3}{5}$
- (e)  $\frac{2}{5}$

**Q153.** Two equilateral triangles and two parallelograms are cut down from a hexagon. If area of one equilateral triangle is  $4\sqrt{3}$  cm<sup>2</sup> then find the height of parallelogram?

- (a)  $2\sqrt{3}$  cm
- (b)  $\sqrt{3}$  cm
- (c)  $4\sqrt{3}$  cm
- (d)  $3\sqrt{3}$  cm
- (e)  $8\sqrt{3}$  cm

**Q154.** Work done by A, B, C and D is in arithmetic progression. C worked for 9 days and completed 30% work. A and B worked for 2 days and 3 days only. Find for how many days 'D' work to complete the remaining work if all four together can complete that work in 4 days.

- (a) 12 days
- (b) 10 days
- (c) 8 days
- (d) 6 days
- (e) 4 days

**Directions (155-156):** Pipe A is  $33\frac{1}{3}\%$  more efficient than pipe B. Pipe C can empty the tank at the rate of 40 litres/hour.

**Q155.** Mohit opened pipe A and pipe B for  $\frac{13}{7}$  hours and the tank was filled upto 10 liters less than 75% of its capacity. After that he also opened the pipe C and tank was filled in 1 hour. Find the time in which pipe C alone could empty the tank.

- (a) 8 hours
- (b) 9 hours
- (c) 9.5 hours
- (d) 8.5 hours
- (e) Can't be determined

**Q156.** When these pipes were connected to a different tank. Initially, pipe A and B were opened, till the tank was filled 10 liters more water than 75% capacity of tank. After that all the pipes were opened, and the remaining tank was filled in 1 hour. Find the capacity of tank. Given that pipe A will take 4 hours to fill the tank.

- (a) 600 litres
- (b) 160 litres
- (c) 360 litres
- (d) 180 litres
- (e) can't be determined

**Q157.** Speed of current is 10 km/hr and speed of a motor boat is 80% more than speed of current. Motor boat travels 280 km downstream with its usual speed, after that it's increased speed by 's' kmph and travelled for another 280 km then it returns and covers 560 km in upstream. If boat complete whole journey downstream to upstream in 45 hr, then find the value of 's'?

- (a) 10 km/hr
- (b) 8 km/hr
- (c) 6 km/hr
- (d) 12 km/hr
- (e) 4 km/hr

**Q158.** A, B and C enter into a partnership and invested some amount. After one year A double its investment, B increase its investment by  $33\frac{1}{3}\%$  and C increase its investment by 20%. In the third year A and B withdraw their investments and D joins the partnership with C. After three year they got profit in the ratio of 12 : 14 : 17 : 8 (A : B : C : D). If difference between initial investment of B and C is 1150. Then Find out the total initial investment made by A and D together?

- (a) 12100
- (b) 14400
- (c) 13800
- (d) 15000
- (e) None of these

**Q159.** A and B together can finish first work in  $11\frac{1}{4}$  days while A alone can do it in 25 days. Both work on second work for 'x' days and (x + 4) days with  $22\frac{2}{9}\%$  more and  $18\frac{2}{11}\%$  less of their respective efficiency respectively and B gets Rs 180 more wages than that of A out of total wages Rs 4140. Find the time taken by both together to complete the second work if they work with their original efficiency?

- (a)  $13\frac{4}{5}$  days
- (b)  $12\frac{1}{2}$  days
- (c)  $16\frac{2}{3}$  days
- (d)  $13\frac{1}{3}$  days
- (e) 14 days

**Q160.** A shopkeeper raised the marked price of an article by 125% and allows three successive discounts of 25%, 20% and  $11\frac{1}{9}\%$  on new marked price and make a profit of 25%. If shopkeeper allows three successive discounts of  $33\frac{1}{3}\%$ ,  $16\frac{2}{3}\%$  and  $12\frac{1}{2}\%$  on new marked price, he would have Rs 255 less profit than earlier, then find cost price of that article?

- (a) 2184 Rs.
- (b) 2244 Rs.
- (c) 2284 Rs.
- (d) 2304 Rs.
- (e) 2364 Rs.

**Directions (161-165):** The following table shows different plans offered by a lender, type of interest and rates of interest applicable during first, second and third years.

(Note: Some values are missing, you need to calculate those values if required.)

Plans	Type of Interest	Rate of Interest		
		First Year	Second Year	Third Year
A	Simple Interest	-	$6\frac{2}{3}\%$	$3\frac{2}{3}\%$
B	Compound Interest	-	$6\frac{1}{4}\%$	-
C	Simple Interest	$8\frac{3}{4}\%$	$5\frac{1}{4}\%$	-
D	Compound Interest	$7\frac{1}{2}\%$	-	$4\frac{3}{4}\%$
E	Simple Interest	-	$5\frac{4}{5}\%$	$4\frac{3}{5}\%$

**Q161.** If two persons borrows an equal amount of Rs.12000 under plan B and plan E respectively and rate of interest for the first year under plan B and D is same, then what is the difference between second year's interests alone paid by each of them?

- (a) Rs.105.25
- (b) Rs.110.25
- (c) Rs.115.25
- (d) Rs.120.25
- (e) Cannot be determined

**Q162.** A person borrows Rs.20480 under plan C. After completion of the loan tenure of three years under plan C, he extends the tenure for further two years under plan D on the amount payable at that time. He settles his loan by paying Rs.27778. What is the rate of interest for the second year under plan D if rate of interest for the third year under plan C and D is same?

- (a)  $5\frac{3}{4}\%$
- (b)  $5\frac{1}{4}\%$
- (c)  $6\frac{1}{4}\%$
- (d)  $4\frac{3}{4}\%$
- (e)  $6\frac{3}{4}\%$

**Q163.** If the amounts borrowed by a person under plan B and C are in the ratio 16 : 13 and rate of interest applicable during the first year under plan B and D is same, then what is ratio of interests payable under these plans at the end of second year.

- (a) 5 : 6
- (b) 3 : 5
- (c) 3 : 4
- (d) 5 : 4
- (e) None of these

**Q164.** The lender decides to offer a fixed rate of interest at  $6\frac{2}{3}\%$  per year under plan C. By how much percent the interest payable will increase from the interest payable previously under the old plan for the period of three years if rate of interest for the third year under old plan C and plan D is same?

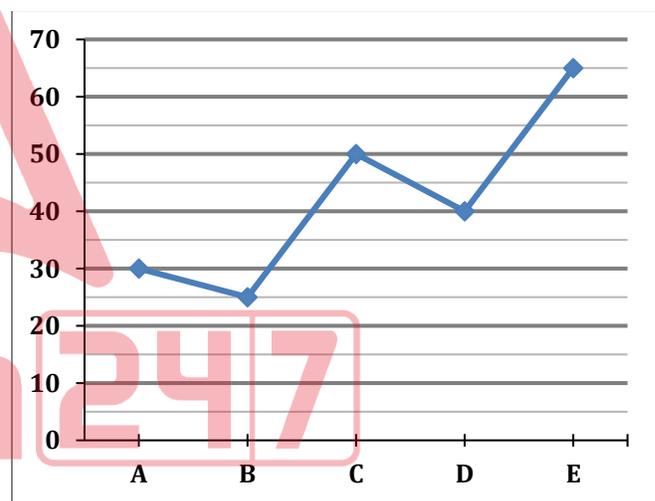
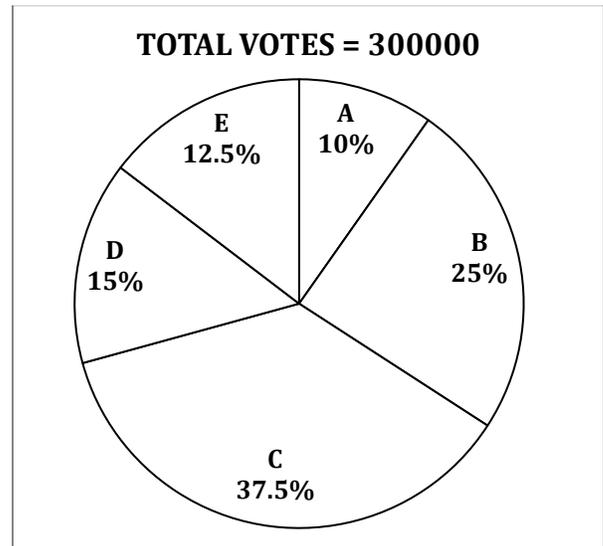
- (a)  $6\frac{1}{3}\%$
- (b)  $6\frac{1}{4}\%$
- (c)  $6\frac{2}{3}\%$
- (d)  $6\frac{2}{5}\%$
- (e) Cannot be determined

**Q165.** Rates of interest for the first year under plan A and E are  $8\frac{2}{3}\%$  and  $7\frac{3}{5}\%$  respectively. A person borrows a total of Rs.30000 partially under plan A and E and pays a total interest of Rs.5540 at the end of third year. How much amount does he borrow under plan A?

- (a) Rs.14000
- (b) Rs.18000
- (c) Rs.16000
- (d) Rs.12000
- (e) Rs.20000

**Directions (166-170) :** A new party XYZ, participated in election in 5 constituencies (A, B, C, D & E). Pie chart shows % distribution of party's total votes scored by its 5 candidates and line graph shows, % of votes scored by winner candidates out of total votes polled in these 5 constituencies.

**Note:** All the votes must be calculated in nearest hundreds.



**Q166.** Candidate of party XYZ is winner from constituency B and defeated runner-up candidate by 7000 votes. None of the candidates from this constituency obtained vote less than 12000, then calculate maximum possible number of candidates from constituency B.

- (a) 6
- (b) 7
- (c) 15
- (d) 13
- (e) can't be determined

**Q167.** Party XYZ wins from constituency C. In constituency E total votes polled are 45000 less than that of constituency C. Find from how many votes the candidate of party XYZ lost in constituency E?

- (a) 79500
- (b) 91500
- (c) 26500
- (d) 27000
- (e) 0

**Q168.** Out of constituency A and D, one of the seats was won by party XYZ. In lost constituency their candidate was runner up by 15000 votes. Find maximum possible difference between total votes polled in both of these constituencies.

- (a) 50000  
 (b) 37500  
 (c) 25000  
 (d) either (a) or (b)  
 (e) either (b) or (c)

**Q169.** In constituencies A & E, both candidates of party XYZ are runner up, and lost by same number of votes. If the votes polled in E is 180000, find approximate number of votes polled in constituency A.

- (a) 350000  
 (b) 365000  
 (c) 180000  
 (d) 100000  
 (e) None of these

**Q170.** Which of the following condition is never possible?

- (i) constituency B and C have equal number of votes polled given that party wins from C.  
 (ii) candidate of party XYZ lost by 28000 voters from constituency E.  
 (iii) constituency A and B have equal number of votes polled.  
 (iv) winner candidate of constituencies B and D got equal number of votes.  
 (a) only (i)  
 (b) Only (i) and (iii)  
 (c) (i), (ii) and (iv)  
 (d) (i) and (ii)  
 (e) All of these are possible

**Directions (171-175):** Data show the different kind of solids in a toy shop. Shopkeeper or (toymaker) makes different types of toys by joining these solids. Some values are missing, you have to calculate these values if required to answer the question.

	Diameter	Length	Breadth	Height
<b>Cylinder</b>	-	-	-	12
<b>Cube</b>	-	-	-	-
<b>Cuboid</b>	-	24	-	10
<b>Cone</b>	14	-	-	-
<b>Sphere</b>	21	-	-	-
<b>Hemisphere</b>	-	-	-	-

**Q171.** A toymaker makes a toy in which a cone is mounted on the base of a hemisphere. If the total surface area of the toy is  $858 \text{ cm}^2$  then find the volume of the toy?

- (a)  $1950 \frac{2}{3} \text{ cm}^3$   
 (b)  $1250 \frac{2}{3} \text{ cm}^3$   
 (c)  $1400 \text{ cm}^3$   
 (d)  $1500 \text{ cm}^3$   
 (e) None of these

**Q172.** Toymaker mounted the cube on the cylinder such that cylinder top is exactly in the middle of the face of the cube. Find the total surface of the toy formed, if the height of formed toy is  $\frac{11}{4} \text{ th}$  of the height of cylinder and curved surface area of cylinder is 66 times the height of cylinder.

- (a)  $3125 \text{ cm}^2$   
 (b)  $2794.5 \text{ cm}^2$   
 (c)  $4112 \text{ cm}^2$   
 (d)  $5123 \text{ cm}^2$   
 (e)  $3438 \text{ cm}^2$

**Q173.** If given sphere is cut into two hemisphere and these hemispheres are mounted on both ends of the cylinder, then find out the ratio of volumes of toy formed by joining both hemispheres on cylinder, cylinder and sphere.

- (a) 7 : 6 : 13  
 (b) 6 : 13 : 7  
 (c) 13 : 6 : 7  
 (d) 13 : 7 : 6  
 (e) None of these

**Q174.** Volume of the cuboid is approximately what percent more or less than the volume of cone if slant height of cone is 25 cm and the breadth of the cuboid is 25% of the height of cone.

- (a) 7%  
 (b) 11%  
 (c) 14%  
 (d) 17%  
 (e) 21%

**Q175.** A solid right circular cylinder has radius  $r$  and height  $5r$ . A solid right circular cone is carved out from one end of the base of cylinder. If base radius of cone is  $r$  and height is  $2\sqrt{2}r$  then, find the ratio between total surface area of cone to the total surface area of remaining part of cylinder.

- (a) 3 : 5  
 (b) 4 : 7  
 (c) 2 : 7  
 (d) 3 : 4  
 (e) 1 : 3

**Directions (176-180):** Table given below shows the amount paid, mileage and time (in hours) for which five taxis are hired by a business man at the rate of Rs. 5/km plus the cost of petrol at Rs. 60/Litre.

Taxi	Amount paid (in Rs.)	Mileage (in km/Litre)	Time (hours)
P	2640	10	16
Q	3500	12	25
R	2592	15	18
S	4500	18	30
T	2925	14	15

**Q176.** Amount paid to taxi Q and S together will how much increase, if mileages of both taxis are decreased by 2km/Litre (distance covered will be same).

- (a) Rs.470
- (b) Rs.475
- (c) Rs.575
- (d) Rs.674
- (e) Rs.325

**Q177.** Average speed of taxi Q is what percent less/more than the average speed of taxi P?

- (a)  $13\frac{1}{3}\%$
- (b)  $12\frac{2}{3}\%$
- (c) 10%
- (d)  $6\frac{2}{3}\%$
- (e)  $16\frac{2}{3}\%$

**Q178.** If taxi S travel his journey in two equal halves with two different speed having ratio 3:2 then find the time for which it travels with higher speed?

- (a) 12 hours
- (b) 10 hours
- (c) 16 hours
- (d) 18 hours
- (e) 14 hours

**Q179.** What is the ratio of the average speed of the taxi R to that of taxi T?

- (a) 21:16
- (b) 12:23
- (c) 14:17
- (d) 16:21
- (e) None of these

**Q180.** Find the average of the total distance covered by all five taxis?

- (a) 314.6 km
- (b) 298.4 km
- (c) 412 km
- (d) 344.6 km
- (e) 346.6 km

**Q181.** A mixture contains milk and water in the ratio of 9 : 2. 44 lit of mixture is taken out and 12 lit of water is added to it, such that ratio of milk to water becomes 3:1. Now another mixture of 64 lit having milk and water in ratio of 3:5 is added to it. Find ratio of milk to water in the final mixture?

- (a) 32 : 17
- (b) 34 : 19
- (c) 7 : 4
- (d) 24 : 11
- (e) 33 : 19

**Q182.** Ratio of present age of Simmi & Rimmi is 4 : 3 while ratio of age of Simmi 6 years later to present age of Rina is 3 : 1. Ratio of present age of Rimmi to present age of Rina is 2 : 1. Find average of present age of all the three (in years).

- (a) 37
- (b) 36
- (c) 32
- (d) 34
- (e) 38

**Q183.** A shopkeeper sells an article at Rs. 720 by making a profit of x% and on interchanging selling price with cost price, it would have a loss of y%. Find the selling price if an article was sold at y% profit whose cost price is Rs.720 (given x : y = 9 : 7)

- (a) Rs. 810
- (b) Rs. 800
- (c) Rs. 1100
- (d) Rs. 880
- (e) Rs. 660

**Q184.** There are two rectangular fields of same area. The length of first rectangular field is a% less than the length of the second field and breadth of the first field is (4a)% greater than the breadth of the second field. Find the value of 'a' if a is non-zero number.

- (a) 60
- (b) 75
- (c) 80
- (d) 90
- (e) None of these

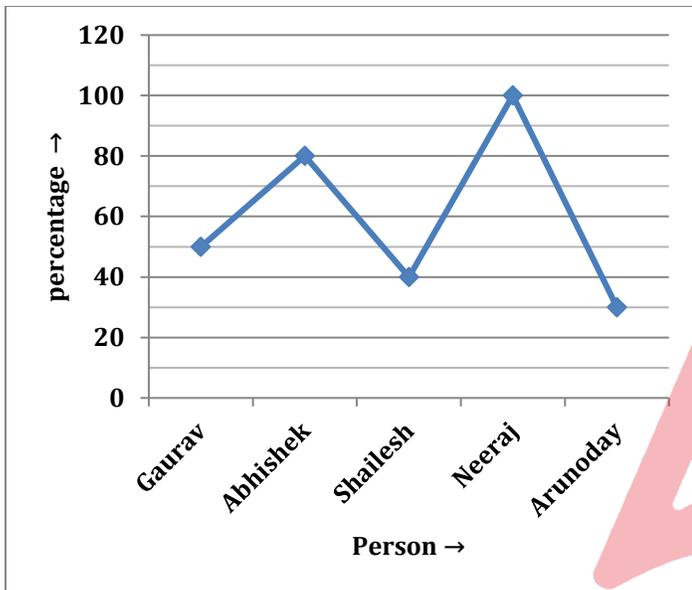
**Q185.** A sum is divided between Aman and Vikash in the ratio of 3 : 5. Aman purchased a motorbike from his money which depreciates 20% per annum while Vikash invested his amount in a scheme which offers compound interest at 20% per annum. By what percentage, the total sum will change after two years?

- (a) 12%
- (b) 14%
- (c) 16%
- (d) 18%
- (e) 20%

**Directions (186-190):** Read the following table and line graph carefully and answer the following questions.

Following table shows the time taken by five persons to complete a work on Monday and Ratio of Time taken by these five persons to complete the work on Monday to the time taken to complete the work on Wednesday is also given. Line graph shows the efficiency (as a percentage) of these five persons on Tuesday with respect to that on Monday.

Person	Time taken to complete the work on Monday	Ratio of Time taken to complete the work on Monday to the time taken to complete the work on Wednesday
Gaurav	25 min.	5 : 4
Abhishek	20 min.	4 : 5
Shailesh	50 min.	10 : 7
Neeraj	10 min.	5 : 13
Arunoday	150 min.	3 : 5



**Q186.** Gaurav, Abhishek and Neeraj work in a rotation to complete the job on Tuesday with only 1 person working in a minute. Who should start the job so that the job is completed in the least possible time?

- (a) Gaurav
- (b) Abhishek
- (c) Neeraj
- (d) Any one of three
- (e) Can't determine

**Q187.** On Tuesday, Gaurav and Arunoday started the work and they worked for 5 minutes then Gaurav is replaced by Abhishek. In how many minutes Abhishek and Arunoday complete the remaining work?

- (a)  $20\frac{3}{7}$  min.
- (b)  $21\frac{4}{21}$  min.
- (c)  $21\frac{5}{21}$  min.
- (d)  $20\frac{4}{17}$  min.
- (e) None of these

**Q188.** On Tuesday, Abhishek, Shailesh and Neeraj work in a rotation in this order to complete the job with only 1 person working in a minute. They earned a total of 875 Rs. Find the share of Shailesh.

- (a) 41 Rs.
- (b) 31 Rs.
- (c) 51 Rs.
- (d) 49 Rs.
- (e) None of these

**Q189.** On Tuesday, Aman who is half as efficient as Shailesh, worked for 50 minutes on the same day then he left. In how many minutes Neeraj and Abhishek together will complete the remaining work?

- (a)  $5\frac{2}{9}$  mins.
- (b)  $4\frac{3}{7}$  mins.
- (c)  $5\frac{3}{7}$  mins.
- (d)  $4\frac{1}{7}$  mins.
- (e)  $5\frac{5}{7}$  mins.

**Q190.** On Wednesday, all of them started the work together. After working for 2 minutes Gaurav left. All except Gaurav worked for another 3 minutes and then all left except Arunoday. In how much time Arunoday will complete the remaining work? (find the approximate value)

- (a) 86 minutes
- (b) 81 minutes
- (c) 96 minutes
- (d) 56 minutes
- (e) 79 minutes

**Directions (191-195):** Each of the following question is followed by two quantities I, and II. You have to determine the value of the quantities using the information provided and accordingly compare the quantities. Mark your answer as per the instruction set provided below.

- (a) Quantity I > Quantity II
- (b) Quantity I  $\geq$  Quantity II
- (c) Quantity I < Quantity II
- (d) Quantity I  $\leq$  Quantity II
- (e) Quantity I = Quantity II or no relation

**Q191. Quantity I:** Time taken by Prabhas to cover a distance of 200 km (without stoppage) by car through which he covers a distance of 100 km in 1 hour when he stops to get fuel for 10 minutes.

**Quantity II:** Time taken by Nagarjuna to travel 20 km downstream if speed of boat and speed of stream be 7 kmph & 3 kmph respectively.

**Q192.** There are 3 red and 5 blue balls in the urn.

**Quantity I:** the probability of drawing 1 red ball and 2 blue balls.

**Quantity II:** the probability of drawing 2 red balls and 1 blue ball.

**Q193.** In how many ways can 4 boys or 5 girls be selected?

**Quantity I:** there are 20 persons (boys and girls only) in the group out of which 12 are boys.

**Quantity II:** the group comprises 10 boys and 10 girls.

**Q194. Quantity I:** The length & breadth of a rectangle of perimeter 48 cm are in ratio 5:3. Find Area?

**Quantity II:** 135

**Q195.**  $\frac{1}{a} + \frac{1}{b} = ?$

**Quantity I:** a & b are roots of equation  $x^2 + x - 6 = 0$

**Quantity II:**  $a^2 + b^2 = 20; ab = 8$

**Direction (196-200):** Following are the questions based on two statements and answer the following based on the given statements.

**Q196.** What will be respective ratio of saving of Veer & Deepak.

**Statement I.** Income of Veer is 4% less than that of Sameer and also expenditure of Veer is 12.5% less than that of Sameer. Deepak spend  $\frac{3}{5}$  th of his income.

**Statement II.** Sameer save Rs. 7000 & Veer save Rs. 7400. Income of Deepak is Rs. 1000 more than that of Sameer.

- (a) Only statement I is sufficient
- (b) Only statement II is sufficient
- (c) Statement I and II both together is sufficient
- (d) Either statement I or Statement II alone is sufficient
- (e) Neither statement I nor statement II is sufficient

**Q197.** What will be cost price of article, which marked 40% above.

**Statement I.** If article sold 25% discount profit will be Rs. 50.

**Statement II.** If article sold two successive discounts of  $14\frac{2}{7}\%$  and 10% profit will be Rs. 80.

- (a) Only statement I is sufficient
- (b) Either statement I or Statement II alone is sufficient
- (c) Statement I and II both together is sufficient
- (d) Only statement II is sufficient
- (e) Neither statement I nor statement II is sufficient

**Q198.** A bag contains total 12 balls in which there are 5 green balls and rest are blue and red balls. What is difference between blue & red balls.

**Statement I .** If one ball taken out from bag probability of being either red or blue is  $\frac{7}{12}$ .

**Statement II.** If two balls taken out from bag probability of being either red or blue is  $\frac{1}{6}$ .

- (a) Only statement II is sufficient
- (b) Either statement I or Statement II alone is sufficient
- (c) Statement I and II both together is sufficient
- (d) Only statement I is sufficient
- (e) Neither statement I nor statement II is sufficient

**Q199.** Side of square is 3.5 cm more than radius of circle. What will be area of square?

**Statement I.** Difference between circumference and diameter of circle is 45 cm.

**Statement II.** Radius of circle is 50% more than breadth of rectangle whose length is 15 cm. Ratio of circumference of circle & perimeter of rectangle is 3 : 2.

- (a) Only statement II is sufficient
- (b) Either statement I or Statement II alone is sufficient
- (c) Statement I and II both together is sufficient
- (d) Only statement I is sufficient
- (e) Neither statement I nor statement II is sufficient

**Q200.** What will be length of train A?

**Statement I.** Relative speed of train A & B is 10 meters/sec when both running in same direction and length of train B is 240 (Speed of train B is more than speed of train A).

**Statement II.** Train B cross a pole in 8 sec and cross train A in 12 sec running in opposite direction.

- (a) Only statement II is sufficient
- (b) Either statement I or Statement II alone is sufficient
- (c) Neither statement I nor statement II is sufficient
- (d) Only statement I is sufficient
- (e) Statement I and II both together is sufficient

## Solutions

**S1. Ans.(d)**

**Sol.** Total students in A =  $200 \times \frac{20}{100} = 40$

Total students in C =  $200 \times \frac{22.5}{100} = 45$

Difference between girls and boys in A =  $50 \times \frac{20}{100} = 10$

Difference between girls and boys in C =  $50 \times \frac{10}{100} = 5$

Let total number of girls in A = x

So, total number of boys in A = (40 - x)

And let total number of girls in C = y

Total number of boys in C = (45 - y)

Given, (40 - x) - x = 10

2x = 30

x = 15

Similarly, (45 - y) - y = 5

2y = 40

y = 20

Required probability =  $\frac{25}{40} \times \frac{25}{45} = \frac{25}{72}$

**S2. Ans.(b)**

**Sol.** All five students from each B & D chosen for representing their respective school in a debate competition should be boys and number of girls should be greater than number of boys in order to maximize the probability of girls in remaining students.

Total number of students in B =  $200 \times \frac{15}{100} = 30$

Total number of students in D =  $200 \times \frac{25}{100} = 50$

$$\text{Difference between boys and girls in B} = 50 \times \frac{20}{100} = 10$$

$$\text{Difference between boys and girls in D} = 50 \times \frac{20}{100} = 10$$

Let total number of boys in B = a

So, total number of girls in B = (30 - a)

Let total number of boys in D = b

So, total number of girls in D = (50 - b)

ATQ,

$$(30 - a) - a = 10$$

$$a = 10$$

$$\text{Also, } (50 - b) - b = 10$$

$$b = 20$$

$$\text{Required probability} = \frac{20}{25} \times \frac{30}{45} = \frac{8}{15}$$

### S3. Ans.(a)

$$\text{Sol. Total students in E} = 200 \times \frac{17.5}{100} = 35$$

$$\text{Difference between girls and boys in E} = 50 \times \frac{30}{100} = 15$$

Let number of girls in E = p

So, number of boys in E = (35 - p)

$$\text{Given, } (35 - p) - p = 15$$

$$p = 10$$

$$\text{Number of boys in F} = (35 - 10) - 5 = 20$$

And number of girls in F = 10

$$\text{Required probability} = \frac{20 \times 10}{{}^{30}C_2} = \frac{40}{87}$$

### S4. Ans.(d)

$$\text{Sol. Total number of students in A} = 200 \times \frac{20}{100} = 40$$

$$\text{Difference between girls and boys in A} = 50 \times \frac{20}{100} = 10$$

Let total number of girls in A = x

So, total number of boys in A = (40 - x)

ATQ,

$$(40 - x) - x = 10$$

$$2x = 30$$

$$x = 15$$

Let total number of boys who left school A = a

And let, total number of girls left school A = 2a

Now,

$$\frac{{}^{25-a}C_2 + {}^{15-2a}C_2}{{}^{40-3a}C_2} = \frac{11}{18}$$

$$a = 4$$

$$\text{Required difference} = 2a - a = a = 4$$

### S5. Ans.(a)

Sol. Let total saving of Ritu be x Rs.

$$\text{Invested in Scheme A} = \frac{5x}{15}$$

$$= \frac{x}{3} \text{ Rs.}$$

$$\text{Amount Invested in scheme B} = \frac{4x}{15} \text{ Rs.}$$

$$\text{Invested in scheme C} = \frac{2x}{5} \text{ Rs.}$$

$$\text{Two year C.I on } 10\% = 10 + 10 + \frac{10 \times 10}{100}$$

$$= 21\%$$

$$\text{Two year CI on } 15\% = 15 + 15 + \frac{15 \times 15}{100}$$

$$= 32.25\%$$

$$\text{Two year CI on } 20\% = 20 + 20 + \frac{20 \times 20}{100}$$

$$= 44\%$$

ATQ,

$$\frac{4x}{15} \times \frac{32.25}{100} - \frac{x}{3} \times \frac{21}{100} = 744$$

$$\frac{129x}{1500} - \frac{21x}{300} = 744$$

$$24x = 744 \times 1500$$

$$x = \frac{744 \times 1500}{24}$$

$$x = 46500 \text{ Rs.}$$

Required difference

$$= \frac{46500 \times 6}{15} \times \frac{44}{100} - \frac{46500 \times 4}{15} \times \frac{32.25}{100}$$

$$= 8184 - 3999$$

$$= 4185 \text{ Rs.}$$

### S6. Ans.(d)

Sol. Let total students participated in exam P & Q be 'x' & 'y' respectively.

ATQ -

$$x \times \frac{40}{100} \times \frac{75}{100} = 900$$

$$\frac{3x}{10} = 900$$

$$x = 3000$$

$$\text{Also, } y \times \frac{40}{100} \times \frac{(100-36)}{100} = 640$$

$$y = 2500$$

$$\text{Required ratio} = \frac{2500}{3000} = 5 : 6$$

### S7. Ans.(e)

Sol. Let total students participated in exam from Q = a

ATQ -

$$a \times \frac{60}{100} \times \frac{60}{100} = 1440$$

$$a = 4000$$

$$\text{Total girls failed from Q} = 4000 \times \frac{40}{100} \times \frac{40}{100} = 640$$

Let total students participated in exam from R = b

So,

$$b \times \frac{45}{100} \times \frac{58}{100} - b \times \frac{55}{100} \times \frac{30}{100} = 192$$

$$b = 2000$$

$$\text{Total girls failed from R} = 2000 \times \frac{45}{100} \times \frac{42}{100} = 378$$

$$\text{Required difference} = 640 - 378 = 262$$

### S8. Ans.(a)

Sol. Let total number of students participated from S = p

ATQ -

$$p \times \frac{45}{100} \times \frac{50}{100} = 1125$$

$$p = 5000$$

Given, ratio of total failed boys to total failed girls = 7 : 3

$$\text{Required difference} = 5000 \times \frac{55}{100} \times \left(\frac{7}{10} - \frac{3}{10}\right) = 1100$$

**S9. Ans.(b)****Sol.** Let total students participated in exam from P = x

$$x \times \frac{40}{100} \times \left(\frac{75}{100} - \frac{25}{100}\right) = 600$$

$$\frac{x}{5} = 600$$

$$x = 3000$$

Let total students participated in exam from S = y

$$y \times \frac{45}{100} \times \frac{50}{100} = 1350$$

$$y = 6000$$

$$\text{Total failed students from S} = 6000 \times \frac{55}{100} = 3300$$

$$\text{Required percentage} = \frac{3300 - 3000}{3000} \times 100$$

$$= \frac{300}{3000} \times 100 = 10\%$$

**S10. Ans.(c)****Sol.** Let total students participated from P be '2x'

So, total students participated from R = 3x

$$3x \times \frac{55}{100} \times \frac{(100-30)}{100} - 2x \times \frac{40}{100} \times \frac{(100-25)}{100} = 2220$$

$$1.155x - 0.60x = 2220$$

$$x = 4000$$

$$\text{Total girls passed from P \& R} = 8000 \times \frac{40}{100} \times \frac{25}{100} + 12000 \times$$

$$\frac{55}{100} \times \frac{30}{100}$$

$$= 800 + 1980 = 2780$$

$$\text{Required average} = \frac{2780}{2} = 1390$$

**S11. Ans.(b)****Sol.** Usual speed of car D in km/hr

$$= \frac{900}{60} \times \frac{18}{5}$$

$$= \frac{15 \times 18}{5} = 54 \text{ km/hr}$$

Let total distance b/w Delhi and Lucknow is 2D km

According to question

$$\frac{D}{54} + \frac{D}{36} = 10$$

$$\frac{D}{3} + \frac{D}{2} = 180$$

$$D = \frac{1080}{5} \text{ km}$$

$$D = 216 \text{ km}$$

$$2D = 432 \text{ km}$$

**S12. Ans.(a)****Sol.** Car C speed in km/hr

$$= \frac{1500}{60} \times \frac{18}{5}$$

$$= 25 \times \frac{18}{5}$$

$$= 90 \text{ km/hr}$$

Car A speed in km/hr

$$= \frac{750}{60} \times \frac{18}{5}$$

$$= 45 \text{ km/hr}$$

Let both Car has travelled for t hours before they meet.

According to question

$$90t - 45t = 180$$

$$t = \frac{180}{45} = 4 \text{ hours.}$$

Therefore, total distance traveled is  $(90 \times 4) + (45 \times 4) = 540 \text{ km}$ .**S13. Ans.(d)**

$$\text{Sol. Speed of car B} = \frac{1800}{60} \times \frac{18}{5} = 108 \text{ km/hr}$$

$$\text{Speed of car C} = \frac{1500}{60} \times \frac{18}{5} = 90 \text{ km/hr}$$

Average speed of Rajeev whole journey

$$= \frac{2xy}{x+y} = \frac{2 \times 108 \times 90}{108+90}$$

$$= \frac{19440}{198} \text{ km/hr}$$

Required distance = speed  $\times$  time

$$= \frac{19440}{198} \times 11 = 1080 \text{ km}$$

Distance between city and village

$$= \frac{1080}{2} = 540 \text{ km}$$

**S14. Ans.(c)**

$$\text{Sol. Car E usual speed} = \frac{1200}{60} \times \frac{18}{5}$$

$$= 72 \text{ km/hr}$$

Time taken from this speed is 480 minutes, i.e. 8 hours.

Hence total distance b/w City X & Y is  $8 \times 72 = 576 \text{ km}$ Reduce speed =  $72 - 12 = 60 \text{ km/hr}$ 

$$\text{Required time} = \frac{576}{60} = \frac{48}{5} \text{ hours or } 576 \text{ minutes}$$

**S15. Ans.(a)****Sol.** Time = t = time after which they meet

$$\text{Speed of car E} = \frac{1200}{60} \times \frac{18}{5} = 72 \text{ km/hr}$$

$$\text{Speed of car C} = \frac{1500}{60} \times \frac{18}{5} = 90 \text{ km/hr}$$

$$= 72 \left(t - \frac{2}{3}\right) + 90t = 762$$

$$= 72t - 48 + 90t = 762$$

$$= t = \frac{762+48}{162}$$

$$t = 5 \text{ hr}$$

Both cars meet at =  $3.20 + 5 = 8.20 \text{ pm}$ 

$$\text{Distance from Delhi} = \left(5 - \frac{2}{3}\right) 72$$

$$= 312 \text{ km}$$



**S16. Ans.(e)****Sol.** Pattern – 16 multiplied by consecutive prime numbers

$16 \times 2 = 32$

$16 \times 3 = 48$

$16 \times 5 = 80$

$16 \times 7 = 112$

$16 \times 11 = 176$

$16 \times 13 = 208$

$16 \times 17 = 272$

So, series is right no need to replace any number

**S17. Ans.(b)****Sol.** Wrong number = 8332

Pattern of series →

$12 \times 6 - 2 = 70$

$70 \times 5 - 2 = 348$

$348 \times 4 - 2 = 1390$

$1390 \times 3 - 2 = 4168$

$4168 \times 2 - 2 = 8334$

$8334 \times 1 - 2 = 8332$

So, 8332 should be replaced with 8334

**S18. Ans.(c)****Sol.** Pattern of series I –

$2.4, 4, 7.2, 12, 18.4, 26.4, 36$

$+1.6 \quad +3.2 \quad +4.8 \quad +6.4 \quad +8.0 \quad +9.6$

$+1.6 \quad +1.6 \quad +1.6 \quad +1.6 \quad +1.6$

**Same series II –**

$(A=18.4), 20, 23.2, 28, (B=34.4), 42.4 \quad (C=52)$

$+1.6 \quad +3.2 \quad +4.8 \quad +6.4 \quad +8.0 \quad +9.6$

$+1.6 \quad +1.6 \quad +1.6 \quad +1.6 \quad +1.6$

**S19. Ans.(e)****Sol.** Pattern of series I –

$123 = (11^2 + 2)$

$171 = (13^2 + 2)$

$227 = (15^2 + 2)$

$291 = (17^2 + 2)$

$363 = (19^2 + 2)$

$443 = (21^2 + 2)$

$531 = (23^2 + 2)$

**Same series II –**

$402 = (20^2 + 2)$

So,  $(A) = (16^2 + 2) = 258$

$(B) = (18^2 + 2) = 326$

$(C) = (24^2 + 2) = 578$

**S20. Ans.(a)****Sol.** Pattern of series I –

Pattern of series I –

$$20, 1300, 2100, 2660, 3100, 3480, 3830$$

$$+1280 \quad +800 \quad +560 \quad +440 \quad +380 \quad +350$$

$$-480 \quad -240 \quad -120 \quad -60 \quad -30$$

**Same series II –**

$(A) = 1600 - 1280 = 320$

$(B) = 2400 + 560 = 2960$

$(C) = 3780 + 350 = 4130$

**S21. Ans.(c)****Sol.** Amar attempted total of 75 question in which 9 do not have negative marking.

Total correct questions of Amar

$= \frac{80}{100} \times 75 = 60$

If his all non-negative marking questions were correct, then his score

$= 60 \times 3 - (15 \times 1) - (0.5 \times 25)$

[12.5 marks are subtracted for his un attempted questions]

$= 180 - 27.5 = 152.5$

If his all non-negative marking questions were wrong, it means 6 of his questions which carry negative marks were wrong.

$= 60 \times 3 - (6 \times 1) - (0.5 \times 25)$

$= 180 - 18.5$

$= 161.5$

**S22. Ans.(d)****Sol.** Total questions attempted by Prem

$= \frac{80}{100} \times 75$

$= 60$

Total correct questions of Prem

$= \frac{90}{100} \times 60$

$= 54$

His 6 questions were wrong and 3 were negative marking questions.

Therefore his score, is

$= 54 \times 3 - (3 \times 1) - (40 \times 0.5)$

$= 162 - 3 - 20$

$= 139$

**S23. Ans.(b)****Sol.** Prem, attempted total of 60 questions and 54 were incorrect.

34 questions of section A were correct.

He attempted, 16 question  $\left[\frac{50}{100} \times 32\right]$  of section C and 6 were incorrect.

$\text{Score from section C} = 10 \times 3 - (6 \times 1) - (16 \times 0.5) = 16$

If 6 questions from section C were wrong, it means all the questions, which he attempted from section B were correct.

He attempted total of  $(60 - 34 - 16) = 10$  question from section B

$\text{Score from section B} = 10 \times 3 - 24 (0.5)$

$= 30 - 12 = 18$

$\text{Required difference} = |16 - 18| = 2$

**S24. Ans.(a)****Sol.** Correct question for Amar

$$= \frac{80}{100} \times 75 = 60$$

$$\text{Score of Amar} = 60 \times 3 - (15 \times 1) - (25 \times 0.5)$$

$$= 180 - 27.5$$

$$= 152.5$$

$$\text{Score of Prem} = 54 \times 3 - (40 \times 0.5)$$

$$= 162 - 20$$

$$= 142$$

$$\text{Required difference} = 10.5$$

**S25. Ans.(e)****Sol.** Let he attempted x correct questions.

&amp; (75 - x) wrong questions. But (75 - x - 4) carries negative marking. Therefore

His score

$$3x - (71 - x) - 25 \times (0.5) = 108.5$$

$$= 3x - 71 + x = 121$$

$$4x = 192$$

$$x = 48$$

hence option (e)

**S26. Ans.(a)****Sol.** Cost price of 20 kg of wheat for retailer

$$= 20 \times 25 \times \frac{90}{100} = \text{Rs. } 450$$

Price at which he sold this amount of wheat to customer

$$= 20 \times 25 \times \frac{95}{100}$$

$$= \text{Rs. } 475$$

$$\text{Profit} = 475 - 450 = 25$$

**S27. Ans.(b)****Sol.** Cost price of cashew for retailer = Rs. 900

$$\text{Price at which he sold all the cashew} = 40 \times 30 \times \frac{125}{100}$$

$$= \text{Rs. } 1500$$

$$\text{Profit \%} = \frac{1500-900}{900} \times 100 = 66.66\%$$

**S28. Ans.(c)**

$$\text{Sol. Cost price of Rice for Retailer} = 20 \times 15 \times \frac{90}{100}$$

$$= \text{Rs. } 270$$

To be in a situation of no loss -no gain, he must sell remaining 50% at Rs. 270.

$$\text{Price per kg} = \frac{270}{10} = \text{Rs. } 27$$

**S29. Ans.(d)**

$$\text{Sol. Cost price of pulses for the retailer} = 18 \times 35 \times \frac{70}{100} = \text{Rs. } 441$$

$$441$$

$$\text{Cost price of 2 kgs of Almond} = 2 \times 40 \times \frac{85}{100} = \text{Rs. } 68$$

$$\text{Total CP} = 441 + 68 = \text{Rs. } 509$$

$$\text{Total SP} = 18 \times 35 \times \frac{130}{100} = \text{Rs. } 819$$

$$\text{Profit \%} = \frac{819-509}{509} \times 100 = \frac{310}{509} \times 100 \approx 61\%$$

**S30. Ans.(c)**

$$\text{Sol. Cost price per kg of sugar} = \frac{240}{15} = 16$$

$$\text{Discount offered by wholesaler} = \frac{4}{20} \times 100 = 20\%$$

$$\text{Discount offered by retailer to customer} = \frac{75}{100} \times 20\% = 15\%$$

$$\text{Selling price of mixture} = (6 + 15) \times 20 \times \frac{85}{100}$$

$$= 357$$

$$\text{Profit \%} = \frac{357-240}{240} \times 100 = \frac{117}{240} \times 100 = 48.75\%$$

**S31. Ans.(a)****Sol.** Total number of males get loan from village P = 7200

$$\times \frac{2}{3} \times \frac{65}{100} = 3120$$

Total females do not get loan from village P

$$= 7200 \times \frac{2}{3} \times \frac{35}{100} \times \frac{10}{21} = 800$$

Total males do not get loan from village P

$$= 7200 \times \frac{1}{3} - 800 = 1600$$

Total males applied for loan from village P

$$= 3120 + 1600 = 4720$$

Total number of males get loan from village T

$$= 9600 \times \frac{68.75}{100} \times \frac{80}{100} = 5280$$

Total females do not get loan from village T

$$= 9600 \times \frac{68.75}{100} \times \frac{20}{100} \times \frac{8}{11} = 960$$

Total males do not get loan from village T

$$= 9600 \times \frac{31.25}{100} - 960 = 2040$$

Total males applied for loan from village T

$$= 5280 + 2040 = 7320$$

$$\text{Required difference} = 7320 - 4720 = 2600$$

**S32. Ans.(e)****Sol.** Total females do not get loan from S = 10000

$$\times \frac{72}{100} \times \frac{24}{100} \times \frac{16}{27} = 1024$$

Total females do not get loan from Q

$$= 8000 \times \frac{60}{100} \times \frac{25}{100} \times \frac{3}{5} = 720$$

$$\text{Required percentage} = \frac{1024-720}{720} \times 100$$

$$= \frac{304}{720} \times 100 = 42 \frac{2}{9}\%$$

**S33. Ans.(d)****Sol.** Total females do not get loan from Q

$$= 8000 \times \frac{3}{5} \times \frac{25}{100} \times \frac{3}{5} = 720$$

$$\text{Total males do not get loan from Q} = 8000 \times \frac{40}{100} - 720 = 2480$$

Total females do not get loan from S

$$= 10000 \times \frac{72}{100} \times \frac{24}{100} \times \frac{16}{27} = 1024$$

Total males do not get loan from S

$$= 10000 \times \frac{28}{100} - 1024 = 1776$$

$$\text{Required ratio} = \frac{2480}{1776} = 155 : 111$$

**S34. Ans.(c)**

**Sol.** Total number of males who get loan from P

$$= 7200 \times \frac{2}{3} \times \frac{65}{100} = 3120$$

Total number of males who get loan from Q

$$= 8000 \times \frac{60}{100} \times \frac{3}{4} = 3600$$

Total number of males who get loan from R

$$= 8800 \times \frac{9}{11} \times \frac{82}{100} = 5904$$

Total number of males who get loan from S

$$= 10000 \times \frac{72}{100} \times \frac{76}{100} = 5472$$

Total number of males who get loan from T

$$= 9600 \times \frac{68.75}{100} \times \frac{80}{100} = 5280$$

Number of males(second highest) who get loan are from village S.

Total females applied for loan from village S

$$= 10000 \times \frac{72}{100} \times \frac{24}{100} \times \frac{43}{27} = 2752$$

**S35. Ans.(e)**

**Sol.** Total females who get loan from village R

$$= 8800 \times \frac{9}{11} \times \frac{18}{100} = 1296$$

Total females who do not get loan from village R

$$= 1296 \times \frac{4}{9} = 576$$

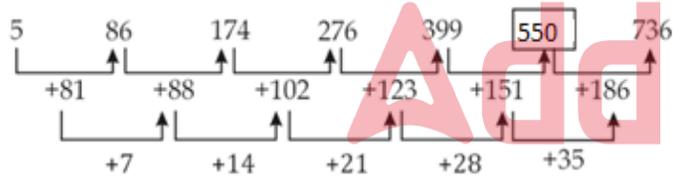
Total males who do not get loan from village R

$$= 8800 \times \frac{2}{11} - 576 = 1024$$

$$\text{Required average} = \frac{1024+1296}{2} = 1160$$

**S36. Ans.(c)**

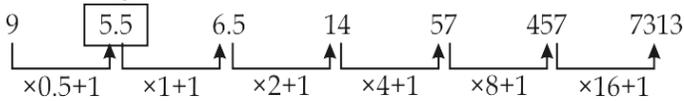
**Sol.** Wrong number = 558



So, there should be 550 instead of 558.

**S37. Ans.(a)**

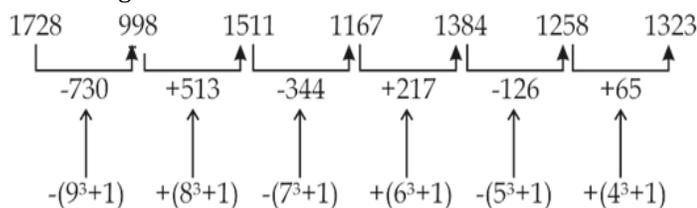
**Sol.** Wrong number = 4.5



So, there should be 5.5 instead of 4.5.

**S38. Ans.(e)**

**Sol.** Wrong number = 1260



So, there should be 1258 instead of 1260

**S39. Ans.(d)**

**Sol.** Wrong number = 19480

Pattern of series -

$$2.5 \times 24 = 60$$

$$60 \times 12 = 720$$

$$720 \times 6 = 4320$$

$$4320 \times 3 = 12960$$

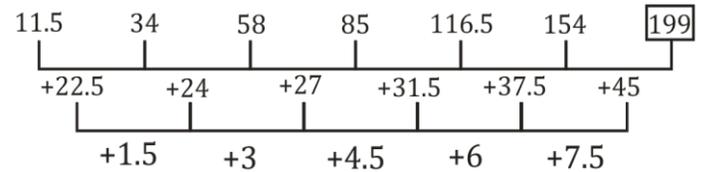
$$12960 \times 1.5 = 19440$$

$$19440 \times 0.75 = 14580$$

So, there should be 19440 instead of 19480.

**S40. Ans.(a)**

**Sol.** Wrong number = 200



So, there should be 199 instead of 200.

**S41. Ans.(b)**

**Sol.** If each works 2 days at a time alternately starting with A, the work is completed in exactly 10 days.

∴ A works for 6 days and B worked for 4 days.

$$\frac{6}{a} + \frac{4}{b} = 1 \quad \dots\dots\dots(i)$$

If B starts, the work is completed in 10.5 days.

∴ B works for 6 days and A worked for 4.5 days.

$$\frac{6}{b} + \frac{4.5}{a} = 1 \quad \dots\dots\dots(ii)$$

By solving (i) and (ii)

$$a = 9 \text{ days}$$

$$\text{And, } b = 12 \text{ days}$$

Time taken by A and B working together to complete the work

$$= \frac{1}{\frac{1}{a} + \frac{1}{b}} = \frac{1}{\frac{1}{9} + \frac{1}{12}}$$

$$= \frac{36}{7} = 5\frac{1}{7} \text{ days}$$

**S42. Ans.(a)**

$$\text{Sol. } \frac{P}{P+18} - \frac{P+2}{42+P} = \frac{1}{12}$$

$$\Rightarrow \frac{22P-36}{P^2+60P+756} = \frac{1}{12}$$

$$\Rightarrow P^2 - 204P + 1188 = 0$$

$$\Rightarrow P^2 - 198P - 6P + 1188 = 0$$

$$\Rightarrow P = 198 \text{ or } 6$$

$$\Rightarrow P = 6$$

Required number of balls in bag B = 48.

**S43. Ans.(c)**

**Sol.** Let that distance be D km.

And, speed of boat P in still water be 2x km/hr

Speed of boat Q in still water be 3x km/hr

Speed of stream be r km/hr

ATQ -

$$\frac{D}{3x-r} = \frac{3D}{5 \times (2x-r)}$$

$$\text{Or, } x = 2r \dots\dots\dots(i)$$

Also,  
 $(3x + r) \times 5 - 5 \times (2x + r) = 60$   
 or,  $x = 12$   
 speed of stream = 6km/hr  
 Required ratio =  $\frac{30}{30} = 1:1$

**Solutions (44-45)**

Man  $\rightarrow 12 \times 6$  days  
 Woman  $\rightarrow 8 \times 18$  days  
 Child  $\rightarrow 10 \times 18$  days  
 (4 men + 12 women + 20 children)'s 2 day work  
 $= 2 \left[ \frac{4}{12 \times 6} + \frac{12}{8 \times 18} + \frac{20}{10 \times 18} \right]$   
 $= \frac{1}{2}$

Remaining work =  $1 - \frac{1}{2} = \frac{1}{2}$

According to question —

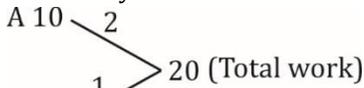
$$\frac{\frac{1}{2}}{\frac{36}{12 \times 6}} = x$$

$$x = 1$$

**S44. Ans.(c)**

**Sol.** A  $\rightarrow 10$  days

B  $\rightarrow 20$  days



B 20  
 2 days' work of (A + B) = 3  
 12 days' work of (A + B) = 18  
 A does the remaining work (20 - 18 = 2 units)  
 Required time =  $12 + \frac{2}{2} = 13$  days.

**S45. Ans.(a)**

**Sol.** Soldier =  $56 \times 1 \times 24$  days

Required time =  $\frac{56 \times 24}{42} = 32$  days

**S46. Ans.(a)**

**Sol.** Let, the income, expenditures and saving of P, Q and R:

	P	Q	R
Income	$\frac{3}{4}x + 8000$	x	$\frac{3}{4}x$
Expenditure on Rent	y	y	y
Expenditure on Food	z	z + 1000	z + 2000
Savings	6t	7t	4t

Now,  
 Savings of Q =  $62\frac{1}{2}\%$  of income of Q =  $\frac{5}{8}x$   
 Savings of Q and R are in the ratio 7 : 4.  
 $\therefore$  Savings of R =  $\frac{4}{7} \times \frac{5}{8}x = \frac{5}{14}x$   
 Percent of R's savings out of his monthly income  
 $= \frac{\frac{5}{14}x}{\frac{3}{4}x} \times 100$   
 $= 47\frac{13}{21}\%$

**S47. Ans.(d)**

**Sol.** Let, the income, expenditures and saving of P, Q and R:

	P	Q	R
Income	$\frac{3}{4}x + 8000$	x	$\frac{3}{4}x$
Expenditure on Rent	y	y	y
Expenditure on Food	z	z + 1000	z + 2000
Savings	6t	7t	4t

Now,  
 Total amount spent by all the three on food = 27000  
 $\Rightarrow z + z + 1000 + z + 2000 = 27000$   
 $\Rightarrow z = 8000$

Monthly income of Q = Monthly income of P + 6000

$$\Rightarrow x = \frac{3}{4}x + 8000 + 6000$$

$$\Rightarrow x = 56000$$

$$\frac{\text{Savings of P}}{\text{Savings of Q}} = \frac{6}{7}$$

$$\Rightarrow \frac{\frac{3}{4}x + 8000 - y - z}{x - y - z - 1000} = \frac{6}{7}$$

Putting the values of x and z

$$\Rightarrow \frac{42000 - y}{47000 - y} = \frac{6}{7}$$

$$\Rightarrow y = 12000$$

Monthly rent of the apartment =  $3y = \text{Rs.}36000$

**S48. Ans.(e)**

**Sol.** Let S.P.  $\rightarrow 120x$

So,

C.P. of 1<sup>st</sup> Article  $\rightarrow 100x$

C.P. of 2<sup>nd</sup> Article  $\rightarrow 96x$

Profit difference =  $4x \rightarrow 8$  Rs.

$x = 2$  Rs.

Selling price = 240 Rs.

**S49. Ans.(d)**

**Sol.** Interest earned from first scheme

$$= 15000 \left[ \left( 1 + \frac{R}{100} \right)^2 - 1 \right] = 1.5R^2 + 300R \dots (i)$$

$$\text{Rate of interest for second scheme} = R \left[ 1 + \frac{R}{100} \right] = \frac{100R + R^2}{100}$$

Interest earned from second scheme

$$= \frac{15000 \times 2 \times (100R + R^2)}{100 \times 100} = 300R + 3R^2 \dots (ii)$$

ATQ,

$$300R + 3R^2 - 1.5R^2 - 300R = 600$$

$$1.5R^2 = 600$$

$$\Rightarrow R = 20\%$$

**S50. Ans.(e)**

**Sol.** Probability of a hit by Sunny =  $\frac{4}{6} = \frac{2}{3}$

For a miss =  $\frac{1}{3}$

Probability of a hit by Satish =  $\frac{3}{6} = \frac{1}{2}$

For a miss =  $\frac{1}{2}$

Required probability =  $\frac{2}{3} + \frac{1}{3} \times \frac{1}{2} \times \frac{2}{3} + \frac{1}{3} \times \frac{1}{2} \times \frac{1}{3} \times \frac{1}{2} \times \frac{2}{3} + \dots$

It formed a G.P.

In which  $a = \frac{2}{3}$  and  $r = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$

$$\text{Required probability} = \frac{a}{1-r} = \frac{\frac{2}{3}}{1-\frac{1}{6}} = \frac{4}{5}$$

**S51. Ans.(d)**

**Sol.** Probability of a girl being selected from a section =  $\frac{\text{Total girls in the section}}{\text{Total students in the section}}$

Let the number of girls, number of boys and total number of students respectively:

For section A:  $2x$ ,  $3x$  and  $5x$ .  
For section B:  $4y$ ,  $5y$  and  $9y$ .  
For section C:  $5z$ ,  $4z$  and  $9z$ .

According to the question,  
Ratio of total number of students in the three sections:

$$\Rightarrow 5x : 9y : 9z = 10 : 12 : 9$$

$$\Rightarrow x : y : z = 6 : 4 : 3$$

Let the values of  $x$ ,  $y$  and  $z$  be  $6k$ ,  $4k$  and  $3k$  respectively.

Total number of girls in all the three sections

$$= 2x + 4y + 5z = 12k + 16k + 15k = 43k$$

Total number of students in all the three sections

$$= 5x + 9y + 9z = 30k + 36k + 27k = 93k$$

Probability of a girl being selected from the students from all the three sections together

$$= \frac{\text{Total girls in all sections}}{\text{Total students in all sections}} = \frac{43k}{93k} = \frac{43}{93}$$

**S52. Ans.(c)**

**Sol.** According to the question,

Number of girls in sections A = Number of boys in section C

$$\Rightarrow 2x = 4z$$

$$\Rightarrow x = 2z$$

Number of boys in section A : Number of boys in section C

$$= 3x : 4z = 6z : 4z = 3 : 2$$

**S53. Ans.(a)**

**Sol.** Let total quantity of milk =  $200x$  L

And total quantity of water =  $100x$  L

Total milk in P and Q =  $(20\% + 15\%) 200x = 35 \times 2x = 70x$  L

Total water in P and Q =  $35 \times x$

$$\text{Total water in X} = 35x + \frac{25}{100} \times \frac{25}{100} \times 100x$$

$$= 35x + 6.25x$$

$$= 41.25x \text{ L}$$

Let cost price of milk per liter be Rs.10

So, cost price of  $(70x + 41.25x)$  L of mixture

$$= 70x \times 10 = \text{Rs.}700x$$

Selling price of  $(70x + 41.25x)$  L of mixture

$$= 111.25x \times 10 = \text{Rs.}1112.5x$$

$$\text{Required profit percentage} = \frac{1112.5x - 700x}{700x} \times 100$$

$$= \frac{412.5}{7}$$

$$= \frac{825}{14}$$

$$= 58\frac{13}{14}\%$$

Or we can say that profit in due the quantity of water in the mixture.

So we can directly write

$$\% \text{ profit} = \frac{41.25x}{70x} \times 100$$

$$= 58\frac{13}{14}\%$$

**S54. Ans.(c)**

**Sol.** Milk in vessel A and C =  $\frac{50}{100} \times 2x = x$

Water in vessel A and C =  $\frac{55}{100} \times x$

$$= 0.55x$$

Ratio of milk and water in M =  $x : 0.55x$

$$= 20 : 11$$

According to question,

$$\Rightarrow \frac{x - \frac{20}{31} \times 62}{55x - \frac{11}{31} \times 62 + 17} = \frac{6}{5}$$

$$\Rightarrow \frac{x - 40}{55x - 5} = \frac{6}{5}$$

$$\Rightarrow 5x - 200 = 3.30x - 30$$

$$x = 100$$

Quantity of milk in vessel B =  $\frac{20}{100} \times 2 \times 100$

$$= 40 \text{ L}$$

**S55. Ans.(b)**

**Sol.** Let total milk in all 5 vessel =  $200x$

And total water in all 5 vessel =  $100x$

So,

Total milk in all vessel except C =  $\frac{65}{100} \times 200x$

$$= 130x$$

Total water in all vessel except C =  $\frac{55}{100} \times 100x$

$$= 55x$$

And

Ratio of milk and water in vessel C =  $35 \times 2x : 45x$

$$= 70x : 45x$$

$$= 14 : 9$$

According to question,

$$\frac{130x + \frac{14}{23} \times 115}{55x + \frac{9}{23} \times 115} = \frac{9}{4}$$

$$\frac{130x + 70}{55x + 45} = \frac{9}{4}$$

$$520x + 280 = 495x + 405$$

$$25x = 125$$

$$x = 5$$

Total quantity of water in all five vessel =  $100x = 500 \text{ L}$

**S56. Ans.(c)**

**Sol.** A  $\rightarrow$  Let number of black and blue colored balls be  $4x$  and  $5x$  respectively.

B  $\rightarrow$  Let number of red colored balls be  $y$

$$\text{So, } y + 4x = 5x + 5$$

$$C \rightarrow \frac{5x}{35} = \frac{3}{7} \text{ or } x = 3$$

From A and C

$$\text{Blue} = 15$$

$$\text{Black} = 12$$

$$\text{Red} = 8$$

$$\text{So, required probability} = \frac{{}^8C_1 \times {}^{12}C_1 \times {}^{15}C_1}{{}^{35}C_3} = \frac{288}{1309}$$

**S57. Ans.(e)**

**Sol.** A → Let the length and breadth of the rectangle be  $4x$  m and  $3x$  m respectively.

$$\text{Side of that square} = \frac{4x+3x}{2} = 3.5x \text{ m}$$

B → Sum of the lengths of diagonals of the rectangle = (Side of square)  $\times 3 - 4$

$$C \rightarrow \text{Area of a square} = 784 \text{ m}^2$$

Hence, the question can be answered by using any two of the three statements together.

Hence, It can be solved either by A and B together or by A and C together

**S58. Ans.(a)**

**Sol.** Let the ten's place and unit's place digits of the number be  $x$  and  $y$  respectively.

$$\text{And, the number be } 10x + y = z$$

$$A \rightarrow z+z^2=25z$$

$$\Rightarrow z = 24$$

$$B \rightarrow (10y + x) - (10x + y) = 18$$

$$\Rightarrow y - x = 2$$

$$C \rightarrow \frac{10x+y}{x+y} = \frac{4}{1}$$

$$\Rightarrow y = 2x$$

Hence, either A alone or B and C together are sufficient to answer the question.

**S59. Ans.(b)**

**Sol.** Let the cost price be Rs  $100x$

$$\text{Then Marked price} = 100x \times 1.6 = \text{Rs } 160x$$

$$A \rightarrow \text{SP} = 112\% \text{ of CP}$$

$$\text{And SP} = 160x \times \frac{4}{5} \times \frac{7}{8} = \text{Rs } 112x$$

$$B \rightarrow \text{MP} - \text{CP} = \text{Rs } 480$$

$$C \rightarrow \text{MP} = \text{SP} + 384$$

Hence, Any two of three statements are sufficient to answer the question.

**S60. Ans.(a)**

<b>Sol.</b>	<b>A</b>	<b>:</b>	<b>B</b>	<b>:</b>	<b>C</b>
From A and B	$8100 \times 10$	<b>:</b>	$10800 \times 10$	<b>:</b>	
	9	<b>:</b>	12	<b>:</b>	

Profit share of B = Rs 1800

$$\text{Profit share of A} = \frac{1800}{12} \times 9 = \text{Rs } 1350$$

A and B together only are sufficient to answer this question

**S61. Ans.(b)**

**Sol. Sol.** A → Profit percent = 25%

B → Let CP =  $x$ ,

$$\text{SP} = 1.25x$$

$$\text{New CP} = x + 500$$

$$\text{Profit percentage} = \frac{1.25x - (x+500)}{x+500} \times 100 = \frac{100}{9}$$

$$x = 4000$$

Profit = 1000 Rs.

C → C.P. =  $x$

$$\text{S.P.} = 0.85(x + 1000)$$

$$\frac{0.85x + 850 - x}{x} \times 100 = 25 - \frac{75}{4}$$

$$x = 4000$$

Profit =  $(5000 - 4000) = 1000$  Rs.

So A and either B or C are sufficient.

**S62. Ans.(e)**

**Sol.** As we don't know the time for which Rinku borrowed the amount, so the rate of interest can't be determined

**S63. Ans.(e)**

**Sol.** Let the speed of boat in still water and speed of stream be  $x$  and  $y$  respectively.

$$\text{St A} - \frac{45}{x+y} = 3 \Rightarrow x + y = 15$$

$$\text{St B} - y = \frac{1}{4}x \Rightarrow x = 4y$$

$$\text{St. C} - \frac{36}{x-y} = 4 \Rightarrow x - y = 9$$

So, any two of the three statements are sufficient to answer the question.

**S64. Ans.(d)**

**Sol.** St A — Lengths =  $4x, 5x$

St B — ratio of speed = 1:2

St C — speed of 1st train = 36 km/hr

From B and C

Speed of second train = 72 km/hr

As we don't know the directions of their motion so relative speed can't be determined

**S65. Ans.(d)**

**Sol.** St. C —  $\frac{\sqrt{3}}{4}a^2 = 16\sqrt{3}$ , from here side of the equilateral triangle and height can be calculated.

$$\text{St. B} - \text{Side of triangle} = \frac{48}{3 \times 2} = 8$$

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

St. A — no conclusion

So using either B or C alone we can find the height.

**S66. Ans.(b)**

**Sol. Quantity I**

Let the number be  $10x + y$

Acc. to question

$$y = x + 2$$

and

$$(10x + y)(x + y) = 144$$

$$(10x + x + 2)(x + x + 2) = 144$$

$$(11x + 2)(x + 1) = 72$$

$$11x^2 + 13x + 2 = 72$$

$$11x^2 + 13x - 70 = 0$$

$$11x^2 + 35x - 22x - 70 = 0$$

On solving  $x = 2$

Number is 24

Quantity II > Quantity I

**S67. Ans.(b)**

**Sol. Quantity I**

Let they meet after 'n' days

Applying Arithmetic progression

$$\frac{n}{2}[2 \times 15 + (n-1)(-1)] + \frac{n}{2}[20 + (n-1)2] = 165$$

$$\frac{n}{2}[30 - n + 1 + 20 + 2n - 2] = 165$$

$$n^2 + 49n - 330 = 0$$

$$n = -55, +6$$

so, they will meet in 6 days

**Quantity II**

Let required no. of days =  $x$

$$\frac{(x-5)}{10} + \frac{(x-3)}{12} + \frac{x}{15} = 1$$

$$\frac{6x-30+5x-15+4x}{60} = 1$$

$$15x - 45 = 60$$

$$15x = 105$$

$$x = 7 \text{ Days}$$

Quantity II > Quantity I

**S68. Ans.(a)****Sol. Quantity I:**

Let present age of Randy =  $x$

$$\frac{x-10}{12} = 24 - 19$$

$$x - 10 = 5 \times 12$$

$$x = 70 \text{ years}$$

**Quantity II:**

Required average

$$= \frac{14 \times \frac{111}{4} - 2 \times 42}{12}$$

$$= \frac{777 - 84}{12}$$

$$= \frac{609}{12} = \frac{203}{4}$$

$$= 25.375 \text{ year}$$

Quantity I > Quantity II

**S69. Ans.(a)****Sol. Quantity I:**

Let C.P of 100 gm = 100 Rs

So, he purchases 120 gm in 100 Rs

And sell 90 gm in =  $\frac{105}{100} \times 100$  RS

So, % profit

$$= \frac{\text{S.P.} - \text{C.P.}}{\text{C.P.}} \times 100$$

$$= \frac{\frac{105}{100} - \frac{100}{100}}{\frac{100}{100}} \times 100$$

$$= \frac{\frac{21}{5} - \frac{5}{5}}{\frac{5}{5}} \times 100 = \frac{21-5}{5} \times 100$$

$$= \frac{36}{90} \times 100$$

$$= 40\% \text{ profit}$$

**Quantity II:**

50% → 12 Rs

So, 100 → 24 Rs

So, 80% → 19.2

There will be 0% profit if the book were sold for Rs.4.8 more

Quantity I > Quantity II

**S70. Ans.(e)****Sol. Quantity I:**

Let first we arrange all 4 men in 4! Ways then we arrange 4 women in  ${}^4P_4$  ways at 4 places either left of the man or right of the man.

$$= 4! \times {}^4P_4 + 4! \times {}^4P_4 = 2 \times 576$$

$$= 1152$$

**Quantity II:**

Let first we arrange 4 men in 3! Ways, then 4 women can be arranged in 4 places in  ${}^4P_4$  ways

$$= 3! \times {}^4P_4 = 144$$

$$= 144 \times 8$$

$$= 1152$$

Quantity I = Quantity II

**S71. Ans.(a)**

**Sol.** From I →

$$X + Y + Z = 16 \times 3 + 12 = 60$$

Let, Y's age be 'a' years

Then, X = a - d

$$Z = a + d$$

$$\Rightarrow 3a = 60, a = 20$$

Y's present age = 20 years

(X + Z)'s present age = 60 - 20 = 40 years

From II →

Let x, y and z years be the respective age of X, Y and Z

$$\frac{x+z}{2} = y$$

$$x + z = 2y$$

$$z - y = 4$$

$$x + z = 2(z - 4)$$

$$\Rightarrow x + z = 2z - 8$$

$$\Rightarrow x - z = -8$$

$$\Rightarrow z - x = 8$$

Statement I alone is sufficient to answer the question but statement II alone is not sufficient to answer the question.

**S72. Ans.(d)**

**Sol.** According to concept if ratio between speed of two men is a : b then their distinct meeting points are (b - a)

From I → Speed of Prabhat is 24 km/hr more than speed of Rahul. By this we can't conclude, will they meet at half of the distance or not.

From II → Ratio between speed of Rahul to speed of Prabhat → 1 : 3

Distinct meeting points → (3 - 1) = 2

From statement (II) we can conclude, that they will meet at half of the distance on a circular track

Hence, Statement II alone is sufficient to answer the question but statement I alone is not sufficient to answer the question.

**S73. Ans.(d)**

**Sol.** Let there are 'x' red and 'y' yellow balls

Where,  $x + y = 7$

$$\text{From I} \rightarrow \frac{{}^yC_2}{{}^{10}C_2} = \frac{2}{15}$$

$$\Rightarrow \frac{y \times (y-1)}{90} = \frac{2}{15}$$

$$y(y-1) = 12$$

$$y = 4$$

From II →

$$\frac{3 \times x}{{}^{10}C_2} = \frac{1}{5}$$

$$\Rightarrow \frac{3 \times x}{45} = \frac{1}{5}$$

$$x = 3$$

$$y = 4$$

Either statement I or statement II by itself is sufficient to answer the question.

**S74. Ans.(b)****Sol.** From I →

Let, number of pens and pencils sold be  $2x$  and  $3x$  respectively while cost price of a pen and a pencil be  $3y$  and  $2y$  respectively.

$$\text{Total cost price} = 2x \times 3y + 3x \times 2y = 12xy$$

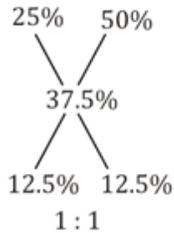
$$\text{Total selling price} = 12xy \times \frac{137.5}{100} = 16.5xy$$

From II →

Profit % on selling one pen and one pencil is 25% and 50% respectively.

If overall profit % is 37.5%

⇒ Using allegation



Total cost price of pen = Total cost price of pencil

**S75. Ans.(e)****Sol. Quantity I:**

Let vessel A contains  $3x$  litres milk and  $x$  litres water and initial quantity of mixture in vessel A be  $4x$  litres.

Half of the content of vessel A is first poured into vessel B, then content of vessel B is poured into vessel C and finally contents of vessel C is poured into vessel A.

So, vessel A finally contains contents of all the three vessels.

Final ratio of milk and water in vessel A:

$$\frac{\text{Quantity of milk in all three vessels}}{\text{Quantity of water in all three vessels}} = \frac{9}{4}$$

$$\frac{3x + 30}{x + 20} = \frac{9}{4}$$

$$\Rightarrow x = 20$$

Initial quantity of mixture in vessel A =  $4x = 80$  litres

Quantity I = Quantity II

**S76. Ans.(d)**

**Sol.** 20 men can complete the work in 12 days. So, 1 man can complete the same work in 240 days.

Efficiency of 5 women = Efficiency of 3 men

$$5W = 3M$$

Ratio of efficiencies:

$$\frac{M}{W} = \frac{5}{3}$$

Let, a man does 5 units and a woman does 3 units of work per day

& total units of work are 1200 units.

$$8 \text{ days' work of } 4 \text{ men and } 10 \text{ women} = 8 \times (4 \times 5 + 10 \times 3) = 400 \text{ units}$$

$$\text{Remaining work} = 1200 - 400 = 800 \text{ units}$$

Quantity I:

Let the additional number of women required be  $x$ .

There are 4 men and  $10 + x$  women now.

Per day work of 4 men and  $10 + x$  woman

$$= 4 \times 5 + (10 + x) \times 3 = 50 + 3x \text{ units}$$

No. of day required to complete the remaining work

$$= \frac{800}{50 + 3x}$$

$$\frac{800}{50 + 3x} = 10$$

$$50 + 3x = 80$$

$$3x = 30$$

$$x = 10$$

10 additional women are required to complete the remaining work in 10 days.

Quantity II:

Let the additional number of men required be  $y$ .

There are  $4 + y$  men and 10 women now.

$$\text{Per day work of } 4 + y \text{ men and } 10 \text{ woman} = (4 + y) \times 5 + 10 \times 3 = 50 + 5y \text{ units}$$

$$\text{No. of day required to complete the remaining work} = \frac{800}{50 + 5y}$$

$$\frac{800}{50 + 5y} \leq 8$$

$$y \geq 10$$

At least 10 additional men are required to complete the remaining work in either 8 or less than 8 days.

Quantity II  $\geq$  Quantity I

**S77. Ans.(a)****Sol.**

	A	B	C
Time	$x + 5$	$x$	$x - 4$

$$\therefore \frac{1}{x+5} + \frac{1}{x} = \frac{1}{x-4}$$

$$x = 10$$

$$\therefore \text{Quantity I} \rightarrow 10 + 5 = 15 \text{ days}$$

$$\text{Given } [2M = 3W]$$

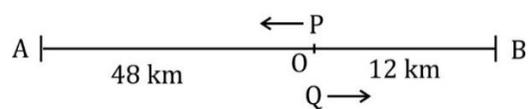
$$\therefore \frac{(8M+14W) \times x \times 7}{\frac{7}{12} \times 360} = \frac{(6M+10W) \times 15 \times 6}{\frac{5}{12} \times 360}$$

$$x = \frac{171}{13}$$

$$= 13 \frac{2}{13}$$

$$\text{Quantity II} \rightarrow 13 \frac{2}{13}$$

$$\therefore (\text{Quantity I} > \text{Quantity II})$$

**S78. Ans.(b)****Sol.**

Let P is faster than Q

Then P covers 72 km distance in the same time as Q covers 48 km distance

$$\text{Ratio of the speed} = 72 : 48$$

$$= 3 : 2$$

$$\therefore \text{Speed of faster train i.e., } P = \frac{48}{2} \times 3 = 72 \text{ km/hr}$$

$$\text{Quantity 1} \rightarrow \text{Difference between P and Q} = 72 - 48 = 24 \text{ km/hr.}$$

Let speed of train =  $T$  km/hr

Let speed of car =  $C$  km/hr

$$\therefore \frac{120}{T} + \frac{480}{C} = 8 \dots\dots\dots(i)$$

$$\frac{200}{T} + \frac{400}{C} = 8 \frac{1}{3} \dots\dots\dots(ii)$$

On solving (i) and (ii)

$$T = 60 \text{ km/hr}$$

$$\therefore \text{Quantity I} < \text{Quantity II}$$

**S79. Ans.(a)**

**Sol.**  $20\% = \frac{1}{5}$

$$\left. \begin{array}{l} 5 \times 36 \rightarrow 6 \times 36 \quad 180 \rightarrow 216 \\ 25 \times 6 \rightarrow 36 \times 6 \Rightarrow 150 \rightarrow 216 \\ 125 \rightarrow 216 \quad \underline{125 \rightarrow 216} \end{array} \right\} \text{Installments}$$

Total Principal = 455

$\therefore 216 \rightarrow 10800$

$455 \rightarrow \frac{10800}{216} \times 455 = 22750 \text{ Rs.}$

Quantity I  $\rightarrow 22750 \text{ Rs.}$

And,  $5\% = \frac{1}{20}$

$$\left. \begin{array}{l} 20 \times 441 \rightarrow 21 \times 441 \quad 8820 \rightarrow 9261 \\ 400 \times 21 \rightarrow 441 \times 21 \Rightarrow 8400 \rightarrow 9261 \\ 8000 \rightarrow 9261 \quad \underline{8000 \rightarrow 9261} \end{array} \right\} \text{Installments}$$

Sum = 25220 Rs.

$\therefore 25220 \rightarrow 25220$

$9261 \rightarrow \frac{25220}{25220} \times 9261 = 9261 \text{ Rs.}$

Quantity II =  $\frac{240}{100} \times 9261$

= 22226.4 Rs.

$\therefore$  Quantity I > Quantity II

**S80. Ans.(b)**

**Sol.** Quantity I  $\rightarrow \frac{6}{2} = 3$

And,  $\frac{1}{3}\pi r^2 h = 16\pi$

$h = 3$

$\therefore y = \sqrt{4^2 + 3^2} = \sqrt{16 + 9}$

$y = 5$

$\therefore$  Quantity I < Quantity II

**S81. Ans.(a)**

**Sol.** Quantity of impurity in initial mixture

= 5% of 2kg = 0.1 kg

And let x kg of pure chili powder is mixed

ATQ

$$\frac{0.1}{2+x} = \frac{4}{100}$$

$x = 0.5 \text{ kg}$

Profit % =  $\frac{0.1}{2+0.5} \times 100 = 4\%$

To earn 30%, let he marks-up by x%,

Then

$$\left(4 + x + \frac{4 \times x}{100}\right)\% = 30\%$$

$$4 + \frac{104x}{100} = 30$$

$$\frac{104x}{100} = 26$$

or,  $x = 25\%$

**S82. Ans.(b)**

**Sol.** Let no. of questions attempted correctly by him = x

No. of questions attempted wrongly by him = y

And no. of questions unattempted = z

Then,

$x + y + z = 100 \dots(i)$

$4x - 2y - z = 320 \dots(ii)$

From (i) & (ii),

$6y + 5z = 80$

or,  $y = \frac{80 - 5z}{6}$

max. value of y =  $\frac{80 - 5 \times 4}{6} = \frac{60}{6} = 10$

**S83. Ans.(d)**

**Sol.** Let, total work = 48 units

And efficiency A, B and C be a, b and C units respectively

Then,

$a + b = 4$

$b + c = 3$

and,  $b = 2$

hence,  $c = 1$  and  $a = 2$

A and B have same efficiencies

Work done on day one =  $2 + 2 = 4$  units

Work done on day two = 1 unit

Work done in two days = 5 units

Work done in 18 days = 45 units

Remaining three units will be done by A and B in  $\frac{3}{4}$  days

Hence, total no. of days taken =  $18\frac{3}{4}$  days.

**S84. Ans.(b)**

**Sol.** Let the MP of a chair and a table be Rs.5x and Rs.8x respectively.

And, the number of chairs and tables bought be 6y and 5y respectively.

CP of a chair for Abhishek = (100 - 20) % of 5x = Rs.4x

CP of a table for Abhishek = (100 - 25) % of 8x = Rs.6x

Total CP for Abhishek =  $4x \times 6y + 6x \times 5y = 24xy + 30xy = 54xy$

SP of a chair for Abhishek = (100 - 25) % of (100 + 50) % of 4x = 4.5x

SP of a table for Abhishek = (100 - 20) % of (100 + 50) % of 6x = 7.2x

Number of chairs sold in bunch of four by Abhishek =  $\frac{2}{3}$ rd of 6y = 4y

So, number of table sold for free by Abhishek =  $\frac{1}{4}$ th of 4y = y

Total SP for Abhishek =  $4.5x \times 6y + 7.2x \times (5y - y) = 27xy + 28.8xy = 55.8xy$

Profit % =  $\frac{55.8xy - 54xy}{54xy} \times 100 = \frac{1.8xy}{54xy} \times 100 = 3\frac{1}{3}\%$

**S85. Ans.(c)**

**Sol.** According to the question,

MP of a table = 300 + MP of a chair

$\Rightarrow 8x = 300 + 5x$

$\Rightarrow x = 100$

Total CP for Abhishek = 108000

$\Rightarrow 54xy = 108000$

$\Rightarrow 54 \times 100 \times y = 108000$

$\Rightarrow y = 20$

Number of chairs purchased by Abhishek = 6y = 120

**S86. Ans.(b)**

**Sol.** Let, initially planned tons of ore to mine per day be 'x' and planned no. of days be '9n'

$$9nx = 1800 \dots\dots\dots(i)$$

ATQ,

$$3n(x - 20) + (6n - 1)(x + 20) = 1800 \dots\dots\dots(ii)$$

$$\text{or, } 3nx - 60n + 6nx + 120n - x - 20 = 1800$$

$$\text{or, } 60n - x - 20 = 0 \dots\dots\dots(iii)$$

putting  $n = \frac{200}{x}$  from (i) in (iii),

$$x^2 + 20 - 12000 = 0$$

$$\Rightarrow (x + 120)(x - 100) = 0$$

$$\Rightarrow x = 100$$

**S87. Ans.(c)**

**Sol.** Tons of ore mined till one-third of planned no. of days =  $6 \times 100 = 600$

Two days prior to the planned date means, the task has to be completed in 16 days.

Tons of ore needed to be mined per day after  $\frac{1}{3}$ rd period =

$$\frac{1800 - 600}{16 - 6} = \frac{1200}{10} = 120$$

$$\text{Extra tons of ore per day} = 120 - 100 = 20$$

**S88. Ans.(a)**

**Sol.** Let the number of students in A, B and C be b, b and c respectively. Let the total marks obtained by the students of class A, B and C be x, y and z respectively. Total marks obtained by the students of class A and B, B and C and A and C = 2(Total marks obtained by the students of class A, B and C)

$$= 2(60(b + b + c))$$

$$= 120(b + b + c)$$

This also equals

$$52.5(b + b) + 70(b + c) + 60(b + c)$$

$$\therefore 120(2b + c) = 235b + 130c$$

$$b = 2c$$

$$\text{Total number of students of A, B and C} = b + b + c = 50$$

$$2(2c) + c = 50$$

$$\Rightarrow c = 10$$

**S89. Ans.(e)**

**Sol.** Number of students in all of the three sections-  $20 + 20 + 10 = 50$

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**S90. Ans.(b)**

**Sol.** Let length of longer train and smaller train be  $8x$  m and  $7x$  m respectively

And that of speed of longer and smaller train be  $3y$  m/s and  $4y$  m/s respectively

ATQ—

$$(3y + 4y) = \frac{(8x + 7x) \times 7}{90}$$

$$15x = 90y$$

$$x = 6y \dots\dots\dots(i)$$

And

$$4y = \frac{7x + (7x - 100)}{16}$$

$$64y = 14x - 100 \dots\dots\dots(ii)$$

From (i) and (ii)

$$y = 5$$

$$\text{and } x = 30$$

$$\text{speed of longer train} = 15 \text{ m/s}$$

$$\text{and length of longer train} = 8 \times 30 = 240 \text{ m}$$

$$\text{required time} = \frac{240 + 110}{15} = 23 \frac{1}{3} \text{ sec}$$

**S91. Ans.(c)**

**Sol. From I,**

$$\text{Side of square} = 24 \text{ cm}$$

$$\text{Radius of cone} = \text{Side of square} - 3$$

$$r = 24 - 3$$

$$r = 21 \text{ cm}$$

**From II,**

$$\text{Radius of circle} = \frac{66}{22} \times \frac{7}{2} = 10.5 \text{ cm}$$

$$\text{Height of cone} = \text{radius of cone} + 7.5 \text{ cm}$$

$$= 10.5 + 7.5 = 18 \text{ cm}$$

**From I & II**

$$\text{Volume of cone} = \frac{1}{3} \times \frac{22}{7} \times 21 \times 18$$

$$= 8316 \text{ cm}^3$$

So, From I and II we can determine the area of cone.

**S92. Ans.(d)**

**Sol. From I,**

Let man invested Rs 100

$$\text{So amount after three years} = 100 \times \frac{137.5}{100} = \text{Rs. } 137.5$$

$$\text{Interest} = 137.5 - 100 = \text{Rs. } 37.5$$

$$R = \frac{37.5 \times 100}{100 \times 3}$$

$$R = 12.5\%$$

**From II,**

$$\text{Total interest} = 13200 - 9600 = 3600 \text{ Rs.}$$

$$R = \frac{3600 \times 100}{9600 \times 3}$$

$$R = 12.5\%$$

So, either from I or II we can determine rate of interest.

**S93. Ans.(d)**

**Sol.** Let length of two trains be  $9x$  meters and  $8x$  meters

**From I,**

$$(90 + 72) \times \frac{5}{18} = \frac{(9x + 8x)9}{68}$$

$$153x = 3060$$

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

$$\text{Required difference} = 20 \times 9 - 20 \times 8 = 20 \text{ meters}$$

**From II,**

Let length of smaller train is L meters

$$90 \times \frac{5}{18} = \frac{L}{6.4}$$

L = 160 meters

$$\text{Length of larger train} = \frac{160}{8} \times 9 = 180 \text{ meters}$$

Required difference = 20 meters

So, either I or II alone sufficient to give answer of question.

**S94. Ans.(b)**

**Sol. Quantity I -**

Total number of balls in bag =  $(5 + 6 + a + b) = (11 + a + b)$

ATQ -

$$\frac{a}{(11+a+b)} = \frac{1}{6}$$

$$6a - a - b = 11$$

$$5a - b = 11 \text{----- (i)}$$

$$\text{Also, } \frac{b}{11+a+b} = \frac{2}{9}$$

$$9b = 22 + 2a + 2b$$

$$-2a + 7b = 22 \text{----- (ii)}$$

From (i) & (ii)

$$a = 3$$

$$b = 4$$

$$\text{Required probability} = \frac{5 \times 3}{18 \times 17} \text{ (2!)}$$

$$= \frac{5}{51}$$

**Quantity II -**

Total dice =  $8 + x + y$

$$\frac{x}{8+x+y} = \frac{7}{20}$$

$$20x = 56 + 7x + 7y$$

$$13x - 7y = 56 \text{----- (i)}$$

$$\text{Also, } \frac{y}{8+x+y} = \frac{1}{4}$$

$$4y = 8 + x + y$$

$$x + 3y = 8 \text{----- (ii)}$$

From (i) & (ii) we get

$$y = 5$$

$$x = 7$$

$$\text{Required probability} = 2! \times \frac{8 \times 7}{20 \times 19}$$

$$= \frac{28}{95}$$

**Quantity I > Quantity II**

**S95. Ans.(e)**

**Sol. Quantity I -**

$$\text{Volume of cylindrical vessel} = \frac{22}{7} \times 17.5 \times 17.5 \times 18$$

$$= 17325 \text{ cm}^3$$

$$\text{Volume of milk} = 17325 \times \frac{80}{100} = 13860 \text{ cm}^3$$

$$30 \times 7 \times 3 \times h = 13860$$

$$h = \frac{462}{21}$$

$$h = 22 \text{ cm}$$

**Quantity II -**

Let length of rectangle and side of square be  $12x$  &  $11x$  respectively

$$4 \times 11x - 2(12x + 18) = 4$$

$$44x - 24x = 4 + 36$$

$$x = 2 \text{ cm}$$

$$\text{Side of square} = 2 \times 11 = 22 \text{ cm}$$

**Quantity I = Quantity II**

**S96. Ans.(e)**

**Sol. Quantity I -**

Let still water speed of boat  $x$  km/hr and speed of current  $y$  km/hr

ATQ—

$$(x + y) = 2(x - y)$$

$$x = 3y$$

ATQ—

$$\frac{96}{(3y+y)} + \frac{72}{(3y-y)} = 20$$

$$\frac{96+144}{4y} = 20$$

$$y = \frac{240}{80}$$

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

$$x = 3 \times 3 = 9 \text{ km/hr}$$

$$\text{Required time} = \frac{240}{(9+3)} = 20 \text{ hours}$$

**Quantity II -**

Let speed of car be  $x$  km/hr

ATQ -

$$\frac{240}{x} + \frac{480 \times 5}{6x} = \frac{32}{3}$$

$$\frac{1440+2400}{6x} = \frac{32}{3}$$

$$64x = 3840$$

$$x = 60 \text{ km/hr}$$

$$\text{Required time} = \frac{1200}{60} = 20 \text{ hours}$$

**Quantity I = Quantity II**

**S97. Ans.(e)**

**Sol. From statement (A)**

It can be observed that he obtained Rs. 900 in 3 years which means Rs. 300 in 1 year and Rs. 300 is 10% of Rs. 3000.

Therefore,

$$A + 3000 < 5000$$

$$A < 2000$$

It can't be solved further

From statement (B)

We can conclude that

$$A + 4000 \geq 5000$$

$$A \geq 1000$$

From statement (C)

$$A = \text{either of } 500, 1000, 1500 \text{.....}$$

By combining all of the statement we will get

$$A = 1000 \text{ or } 1500$$

**Hence we can't tell exact value of A.**

**S98. Ans.(e)**

**Sol.** Let us assume selling price of item A and B is A and B respectively, while cost price of item A and B is  $x$  and  $y$  respectively. We have to calculate value of B.

From statement (A)

$$4A + B = 70$$

$$7x = 70$$

$$\Rightarrow x = 10$$

and

$$4y + x = 70$$

$$\Rightarrow y = 15.$$

But we can't calculate value of B

From statement (B)

We obtain 4 equations from this statement

$$B = y + 3$$

$$13x = 10A$$

$$B - A = 5$$

$$y - x = 5$$

here are 4 equations and 4 variables, by solving we can get exact value of B as Rs. 18.

From statement (C)

Now profit % of both the items is 3 : 2. Let profit % be 3m% and 2m% for item A and item B respectively.

From only C we cannot solve the question.

By using A and C:-

ATQ

$$4 \times 10 \times \frac{(100+3m)}{100} + 15 \times \frac{(100+2m)}{100} = 70$$

$$M=10$$

So value of B = 18

After combining statement (A) and (C) we can solve the question.

Hence question can be solved by (B) alone or by using (A) and (C).

**S99. Ans.(c)**

**Sol.** (A)  $a + b = -3$

There are many cases possible

$$a = -4, b = 1 \Rightarrow |a \times b| < 10$$

$$a = -7, b = 4 \Rightarrow |a \times b| > 10$$

$$(B) \quad a \times b < 0$$

Either  $a > 0$  &  $b < 0$

OR

$$b > 0 \text{ \& } a < 0$$

$$(C) \quad a + 2.5b = 0$$

$$\frac{a}{b} = \frac{-5}{2}$$

$$\text{Let } a = -5x \text{ \& } b = 2x$$

Minimum possible integers, which satisfies the eqn. are

$$\text{When } x = 1, a = -5 \text{ \& } b = 2$$

$$\Rightarrow |a \times b| = 10$$

$$\text{or when } x = 2$$

$$a = -10, b = 4$$

$$|a \times b| > 10$$

Hence we can answer question from statement (C) alone.

**S100. Ans.(d)**

**Sol.** From (A)

Age of Sonu is 36

And their total age is 96 years.

We can't tell more.

From (B)

Let age of Monu =  $2x$ , age of Jonu is  $3x$ .

Now their average age of all three could be

$$\frac{2x+3x+2x}{3} \text{ or } \frac{2x+3x+3x}{3}$$

We can't tell further.

From (C)

Let age of Monu is  $x$

And age of Sonu and Jonu is  $y$

ATQ,

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

OR

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

From (A) and (B)

We can tell age of Monu, as he is 33 ½% younger than Jonu, and it is given in the question 2 of them have same age.

From (A) and (C)

Average age is 32 years.

Total age is 96 years.

Monu is youngest,

And age of Sonu and Jonu is  $y$  i.e. 36 years.

From (B) and (C)

Let age of Monu is  $x$  years.

Age of Sonu & Jonu is  $y$  years.

$$\frac{x}{y} = \frac{2}{3} = \frac{2k}{2k} \text{ say.}$$

$$\frac{5k}{2} + 2 = \frac{8k}{3}$$

$$15k + 12 = 16k$$

$$k = 12$$

Hence age of Monu =  $2k = 24$  years.

Hence, we can answer from either two statements.

**S101. Ans.(a)**

**Sol.** Given, rate offered by IDBI : rate offered by UCO = 3 : 4

$$\text{Rate offered by UCO bank} = \frac{6}{3} \times 4$$

$$= 8\%$$

Principle invested in UCO bank

$$2 \text{ year CI on } 8\% = 8 + 8 + \frac{8 \times 8}{100}$$

$$= 16.64\%$$

$$\text{Principle} = \frac{29160}{116.64} \times 100$$

$$= 25000 \text{ Rs}$$

$$\text{Amount obtained from IDBI} = \frac{10000 \times 2 \times 6}{100} + 10000$$

$$= 1200 + 10000$$

$$= 11200$$

$$\text{Required difference} = 25000 - 11200$$

$$= 13800 \text{ Rs.}$$

**S102. Ans.(c)**

**Sol.** Rate = 10%

According to question

$$\text{Principle invested in SBI} = \frac{26250}{100+4 \times 10} \times 100$$

$$= 18750 \text{ Rs.}$$

Amounts obtained from Yes bank

$$3 \text{ years CI on } 10\% = 33.1\%$$

$$= 20000 \times \frac{133.1}{100} = 26620 \text{ Rs.}$$

$$\text{Required}\% = \frac{18750}{26620} \times 100$$

$$= 70.435\%$$

**S103. Ans.(b)****Sol.** Principle invested in ICICI

$$= \frac{20000}{5} \times 7$$

$$= 28000 \text{ Rs}$$

$$\text{Time} = (3 - 1) = 2 \text{ year}$$

$$2 \text{ year CI on } 15\% = 15 + 15 + \frac{15 \times 15}{100}$$

$$= 32.25\%$$

$$\text{Required interest} = 28000 \times \frac{32.25}{100}$$

$$= 9030 \text{ Rs.}$$

**S104. Ans.(d)****Sol.** Let principle invested in UCO is X Rs. and principle invested in ICICI is (x + 3000) Rs

According to question

$$2 \text{ year CI on } 15\% = 15 + 15 + \frac{15 \times 15}{100}$$

$$= 32.25\%$$

$$2 \text{ year CI on } 8\% = 8 + 8 + \frac{8 \times 8}{100}$$

$$= 16.64\%$$

$$\frac{132.25(X+3000)}{100} - \frac{16.64x}{100} = 32870$$

$$115.61X = 3287000 - 396750$$

$$115.61x = 2890250$$

$$X = \frac{2890250}{115.61} = 25000 \text{ Rs.}$$

$$\text{Principle invested in ICICI} = 25000 + 3000$$

$$= 28000 \text{ Rs.}$$

**S105. Ans.(c)****Sol.** Rate offered by SBI =  $\frac{6}{3} \times 5$ 

$$= 10\%$$

$$\text{Time} = \frac{4}{2} \times 1 = 2 \text{ year}$$

Principle invested in SBI

$$= \frac{26250}{100 + (10 \times 4)} \times 100$$

$$= 18750 \text{ Rs.}$$

Amount obtained from IDBI

$$= 10000 \times \frac{100 + (2 \times 6)}{100}$$

$$= 10000 \times \frac{112}{100}$$

$$= 11200 \text{ Rs.}$$

$$\text{Required sum} = 11200 + 18750$$

$$= 29950 \text{ Rs.}$$

**S106. Ans.(e)****Sol.** Let he prepared 300 x kg Laddu on Saturday, then

$$\text{Laddu's sold on Saturday} = 225x$$

$$\text{Laddu's prepared on Sunday} = 500x$$

$$\text{Laddu's sold on Sunday} = 400x$$

Barfi's prepared on Saturday and Sunday each

$$= \frac{500x + 300x}{2} = 400x$$

$$\text{Barfi's sold on Saturday} = 280x$$

$$\text{Barfi's sold on Sunday} = 320x$$

ATQ,

$$(400x + 225x) - (280x + 320x) = 100 \text{ kg}$$

$$\Rightarrow 25x = 100$$

$$x = 4$$

therefore, his Laddu's remained unsold on Sunday = 100x =

$$400 \text{ kg.}$$

**S107. Ans.(a)****Sol.** Let Laddu's prepared on Friday be 100x

Then Laddu's sold on Friday be 80x

Also

Laddu's prepared on Monday be 100y

Then Laddu's sold on Monday be 90y

ATQ,

$$\frac{100x + 90y}{100x + 100y} = \frac{113}{120}$$

$$\Rightarrow \frac{x}{y} = \frac{5}{7} \dots (i)$$

And

$$90y \times 20 - 80x \times 20 = 11040$$

$$1800y - 1600x = 11040$$

$$90y - 80x = 552 \dots (ii)$$

On solving (i) and (ii) we will get

$$y = 16.8$$

$$100y = 1680 \text{ kg.}$$

**S108. Ans.(c)****Sol.** Let Barfi prepared on Friday be = 100a

Laddu prepared on Friday = 100a + 80

Let Barfi prepared on Monday = 100b

ATQ,

$$\frac{80}{100} [100a + 80] = 60b$$

$$100a + 80 = 75b$$

$$15b - 20a = 16 \dots (i)$$

Also,

$$\frac{100b}{100a} = \frac{10}{7} \Rightarrow 7b = 10a \text{ or } 14b = 20a$$

From (i)

$$b = 16$$

or

$$a = 11.2$$

Therefore, Barfi prepared on Friday = 1120 kg

**S109. Ans.(a)****Sol.** Let he prepared 500x kg of Laddu & 400x kg of Barfi on Saturday.

Quantity of Barfi sold = 280x kg

$$\text{Profit from Barfi} = 280x \times 10 - \frac{120x}{0.8} \times 10$$

$$= 2800x - 1500x = 1300x$$

Quantity of Laddu sold = 375x

$$\text{Profit from Laddu} = 375x \times 10 - \frac{125x}{0.8} \times 10$$

$$= 3750x - 1562.5x$$

$$= 2187.5x$$

Required profit %

$$= \frac{1300x + 2187.5x}{900x \times 200} \times 100$$

$$= \frac{3487.5x}{1800x} = 1.9375 \approx 2\%$$

**S110. Ans.(b)****Sol.** Let he prepared 100a kg of Barfi on each day.

The laddu's prepared = 75a, 125a and 105a.

Barfi sold on these 3 days = 70a + 80a + 60a = 210a

Laddu sold on these 3 days

$$= \frac{225}{4}a + 100a + 94.5a$$

$$= 56.25a + 100a + 94.5a = 250.75a$$

$$\text{Required \%} = \frac{460.75}{605} \times 100 = 76.15\% \approx 76\%$$

**S111. Ans.(a)**

**Sol.** Let, one day work of a man, woman and youngster be  $m, w$  and  $y$  units,

$$\text{ATQ, } 2m = 3w = 4y$$

One-day work of 14 men, 12 women and 12 youngsters

$$\begin{aligned} &= 14m + 12w + 12y \\ &= 14m + 12 \times \frac{2}{3}m + 12 \times \frac{2}{4}m \\ &= 14m + 8m + 6m \\ &= 28m \end{aligned}$$

Total work =  $24 \times 28m$  units

To finish it in 14 days,

$$\frac{24 \times 28m}{14} = 48m \text{ units must be done daily.}$$

Which means,  $48m - 28m = 20m$  additional units are to be done.

For this, 20 more men are required.

**S112. Ans.(c)**

**Sol.** To finish it in  $19\frac{1}{5} = 19.2$  days,

$$\frac{24 \times 28m}{19.2} = 35m \text{ units are to be done daily.}$$

Which means,  $35m - 28m = 7m$  additional units are to be done daily.

$$\text{Now, } 1.w + 1.y = \frac{2}{3}m + \frac{1}{2}m = \frac{7}{6}m$$

Daily work of a pair of women & youngster is  $\frac{7m}{6}$  units

Hence, 6 such pairs are needed.

**S113. Ans.(c)**

**Sol.** Profit on one articles = 30

Profit on 20 articles =  $30 \times 20 \Rightarrow 600$

$600 \rightarrow 300$

$1 \rightarrow 0.5$

M.P.  $\rightarrow 160 \rightarrow 160 \times 0.5 \Rightarrow \text{Rs.}80$

**S114. Ans.(e)**

**Sol.** Let total quantity  $\Rightarrow 1000$

He gives  $\rightarrow 800 \rightarrow$  for  $\rightarrow 100$

Cost price of  $\rightarrow 800 \rightarrow 80$

Now initial discount =  $\frac{30}{160} \times 100 = 18.75\%$

Reduced discount =  $\frac{18.75 \times 4}{5} = 15\%$

S.P. =  $\frac{160 \times 85}{100} = 136$

Profit =  $\frac{(136-80)}{80} \times 100 = 70\%$

**S115. Ans.(b)**

**Sol.** Let cost price of 20 articles  $\rightarrow 20 \times 100 = 2000$

Actual profit on 20 articles  $\rightarrow 20 \times 30 = 600$

S.P.  $\rightarrow 2600$

S.P. of each undamaged article  $\Rightarrow \frac{2600}{20-7} = 200$

Initial discount =  $\frac{30}{160} \times 100 = 18.75\%$

So M.P. of each article should be =  $\frac{200}{81.25} \times 100 \approx 246$

Approximately markup% = 146%

**Solution (116-120)**

Let, Number of farmers producing RICE =  $5x$

$\Rightarrow$  Number of farmers producing CORN =  $5x \times \frac{120}{100} = 6x$

Let, Number of farmers producing only RICE and only CORN =  $a$

Farmers producing only WHEAT =  $5x \times \frac{3}{5} = 3x$

Let, Number of farmers producing only WHEAT and RICE =  $y$

$\Rightarrow$  Number of farmers producing only WHEAT and CORN but not RICE =  $2y$

But Number of farmers producing only RICE is half of number of farmers producing RICE.

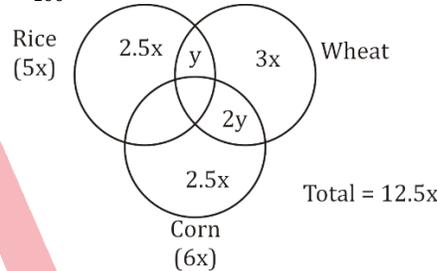
$\Rightarrow a = 2.5x$

Number of farmers producing CORN is 48% of total farmers =  $6x$

$\Rightarrow 100\% = 12.5x =$  Total number of farmers

Number of farmers producing RICE and CORN

$$= \frac{12}{100} \times 12.5x = 1.5x$$



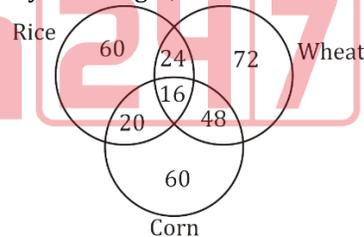
$$\Rightarrow 1.5x + 2.5x + y + 3x + 2y + 2.5x = 12.5x$$

$$\Rightarrow y = x$$

Number of farmers producing only RICE and WHEAT but not CORN =  $24 = y$

Put value of 'y' in above diagram.

By this we got,

**S116. Ans.(d)**

**Sol.** Number of farmers producing at least two types of grain =  $24 + 16 + 20 + 48 = 108$

Number of farmers producing at most one type of grain =  $60 + 72 + 60 = 192$

Required % =  $\frac{108}{192} \times 100 = 56.25\%$

**S117. Ans.(a)**

**Sol.** Number of farmers producing WHEAT and CORN

=  $16 + 48 = 64$

Number of farmers producing Sugarcane =  $64 \times \frac{125}{100} = 80$

**S118. Ans.(c)**

**Sol.** Required % =  $\frac{160}{300} \times 100 = 53\frac{1}{3}\%$

**S119. Ans.(b)**

**Sol.** Number of farmers producing wither only RICE or only WHEAT =  $60 + 72 = 132$

**S120. Ans.(e)**

**Sol.** Required ratio =  $\frac{(24+20+48)}{16} = \frac{92}{16} = \frac{23}{4}$

**S121. Ans.(d)**

**Sol.** Total markers sold by A =  $12\% \times 15,000 = 1800$

X marker sold by A =  $\frac{1800}{9} \times 4 = 800$

Y marker sold by A =  $\frac{1800}{9} \times 3 = 600$

Z marker sold by A =  $\frac{1800}{9} \times 2 = 400$

Let C.P. of one marker = 'x'

S.P. of X marker =  $\frac{140}{100} \times x \times \frac{60}{100} = 0.84x$

S.P. of Y marker =  $\frac{140}{100} \times x \times \frac{80}{100} = 1.12x$

S.P. of Z marker =  $\frac{140}{100} \times x \times \frac{90}{100} = 1.26x$

Total C.P. =  $[800 + 600 + 400]x = 1800x$

Total S.P. =  $800 \times 0.84x + 600 \times 1.12x + 400 \times 1.26x$

=  $672x + 672x + 504x$

=  $1848x$

Total Profit Percentage =  $\frac{1848x - 1800x}{1800x} \times 100 = \frac{48x}{1800x} \times 100 =$

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

**S122. Ans.(b)**

**Sol.** Total markers sold by E =  $\frac{21}{100} \times 15000 = 3150$

X, Y and Z sold by E =  $3 : 2 : 1$

=  $1575; 1050; 525$

Let S.P. of each marker sold by E

=  $x, 1.5x, 3x$

Total S.P. =  $x \times 1575 + 1.5x \times 1050 + 3x \times 525$

=  $4725x$

=  $47250$

$\Rightarrow x = 10$

S.P. of x, y, z =  $10, 15, 30$

Total marker sold by F =  $\frac{20}{100} \times 15000 = 3000$

X, Y and Z sold by F =  $4 : 5 : 3$

=  $1000; 1250; 750$

Total S.P. of markers sold by F

=  $10 \times 1000 + 15 \times 1250 + 30 \times 750$

=  $10,000 + 18,750 + 22,500$

=  $\text{Rs.}51250$

**S123. Ans.(c)**

**Sol.** Let, total C.P. = x

ATQ

$x \times \frac{10}{9} - \left[ x \times \frac{8}{9} \right] = 9000$

$\frac{2}{9}x = 9000$

$x = 40,500$

Total S.P. of marks if C wants to earn 20% profit

=  $40500 \times \frac{120}{100} = 48600$

Let, S.P. of each marker =  $2x, 3x, 4x$

Total marker sold by C

=  $\frac{18}{100} \times 15000 = 2700$

X, Y and Z marker sold by C =  $9 : 7 : 9$

=  $972; 756; 972$

Total S.P. =  $972 \times 2x + 756 \times 3x + 972 \times 4x = 8100x$

Total S.P. of Y marker

=  $\frac{756 \times 3x \times 48600}{8100x} = \text{Rs.} 13608$

**S124. Ans.(b)**

**Sol.** Total markers sold by 'B' =  $\frac{15}{100} \times 15000 = 2250$

X, Y and Z markers sold by B

=  $3 : 4 : 3$

=  $675; 900; 675$

Satish Veer

X markers sold =  $60\% 40\%$

=  $405; 270$

Y markers sold =  $40\% 60\%$

=  $360; 540$

Let S.P. of each X and Y marker =  $x, y$

ATQ

$405x + 360y = 8370 \dots(i)$

$270x + 540y = 9180 \dots(ii)$

By solving (i), and (ii)

$x = 10, y = 12$

**S125. Ans.(e)**

**Sol.** X type of Marker sold by A =  $\frac{4}{9} \times \frac{12}{100} \times 1500 = 800$

X type of Marker sold by B =  $\frac{3}{10} \times \frac{15}{100} \times 15000 = 675$

X type of Marker sold by C =  $\frac{9}{25} \times \frac{18}{100} \times 15000 = 972$

X type of Marker sold by D =  $\frac{6}{15} \times \frac{14}{100} \times 15000 = 840$

X type of Marker sold by E =  $\frac{3}{6} \times \frac{25}{100} \times 15000 = 1575$

X type of Marker sold by F =  $\frac{4}{12} \times \frac{20}{100} \times 15000 = 1000$

E sold maximum number of X type of markers

**S126. Ans.(a)**

**Sol.** Total work = 10080 units (LCM of days taken by all)

Efficiency of A =  $\frac{10080}{70} = 144 \text{ units/hour}$

Efficiency of C =  $\frac{10080}{90} = 112 \text{ units/hour}$

Efficiency of D =  $\frac{10080}{32} = 315 \text{ units/hour}$

New efficiency of A =  $144 \times \frac{7}{8} = 126 \text{ units/hour}$

New efficiency of D =  $315 \times \frac{2}{3} = 210 \text{ units/hour}$

Required time =  $\frac{10080}{(126+112+210)}$

=  $22.5 \text{ hours}$

**S127. Ans.(c)**

**Sol.** Total work = 10080 units (LCM of days taken by all)

Efficiency of A =  $\frac{10080}{70} = 144 \text{ units/hour}$

Efficiency of B =  $\frac{10080}{60} = 168 \text{ units/hour}$

Efficiency of E =  $\frac{10080}{48} = 210 \text{ units/hour}$

Efficiency of F =  $\frac{10080}{36} = 280 \text{ units/hour}$

New efficiency of F =  $280 \times \frac{3}{4} = 210 \text{ units/hour}$

ATQ -

$$\frac{(210+210)(y)}{168(y+1)} = \frac{2}{1}$$

$$420y = 336y + 336$$

$$420y - 336y = 336$$

$$84y = 336$$

$$y = \frac{336}{84}$$

$$y = 4 \text{ hour}$$

$$\text{Total work} = 420y + 168(y+1)$$

$$= 420 \times 4 + 168(4+1)$$

$$= 420 \times 4 + 168 \times 5$$

$$= 2520 \text{ units}$$

$$\text{A will complete} = \frac{2520}{144} = 17\frac{1}{2} \text{ hours}$$

### S128. Ans.(a)

**Sol.** Total work = 10080 units (LCM of days taken by all)

$$\text{Efficiency of A} = \frac{10080}{70} = 144 \text{ units/hour}$$

$$\text{Efficiency of B} = \frac{10080}{60} = 168 \text{ units/hour}$$

$$\text{Efficiency of C} = \frac{10080}{90} = 112 \text{ units/hour}$$

$$\text{Efficiency of D} = \frac{10080}{32} = 315 \text{ units/hour}$$

$$\text{Efficiency of E} = \frac{10080}{48} = 210 \text{ units/hour}$$

$$\text{Efficiency of F} = \frac{10080}{36} = 280 \text{ units/hour}$$

$$\text{G in one hour} = 144 \times \frac{3}{2} = 216 \text{ units/hour}$$

$$\text{H in one hour} = 168 \times \frac{75}{100} = 126 \text{ units/hour}$$

Let C work for n hours and G & H work for (n + 23.5) hours

ATQ -

$$n \times 112 + (216 + 126)(n + 23.5) = 10080$$

$$112n + 342(n+23.5) = 10080$$

$$112n + 342n + 8037 = 10080$$

$$112n + 342n = 10080 - 8037$$

$$454n = 2043$$

$$n = \frac{2043}{454}$$

$$n = 4.5 \text{ hours}$$

$$\text{Total time} = n + (n + 23.5)$$

$$= (4.5 + 4.5 + 23.5)$$

$$= 32.5 \text{ hours}$$

### S129. Ans.(d)

**Sol.** Total work = 10080 units (LCM of days taken by all)

$$\text{Efficiency of A} = \frac{10080}{70} = 144 \text{ units/hour}$$

$$\text{Efficiency of B} = \frac{10080}{60} = 168 \text{ units/hour}$$

$$\text{Efficiency of C} = \frac{10080}{90} = 112 \text{ units/hour}$$

$$\text{Efficiency of D} = \frac{10080}{32} = 315 \text{ units/hour}$$

$$\text{Efficiency of E} = \frac{10080}{48} = 210 \text{ units/hour}$$

$$\text{Efficiency of F} = \frac{10080}{36} = 280 \text{ units/hour}$$

First hour total work of A, B, E and F

$$= (144 + 168 + 210 + 280)$$

$$= 802 \text{ units}$$

In Second hour total task destroy by C & D

$$= -(315 + 112)$$

$$= -(427)$$

Total work in 2 hours = 802 - 427 = 375 units

Total required time =  $\frac{10080 \times 2}{375}$  [375 is the total work done in 2

hours]

$$= \frac{672 \times 2}{25}$$

$$= \frac{1344}{25}$$

$$= 53\frac{19}{25} \text{ hours}$$

### S130. Ans.(d)

**Sol.** Efficiency of E =  $\frac{10080}{48} = 210 \text{ units/hour}$

Efficiency of B =  $\frac{10080}{60} = 168 \text{ units/hour}$

Efficiency of C =  $\frac{10080}{90} = 112 \text{ units/hour}$

Work done by E & B:

$$E = 210 \times 12 = 2520$$

$$B = 168 \times 35 = 5880$$

Remaining work = 10080 - (2520 + 5880)

$$= 10080 - 8400$$

$$= 1680 \text{ units}$$

$$\text{Required days} = \frac{1680}{112}$$

$$= 15 \text{ days}$$

### S131. Ans.(b)

**Sol.** Relative speed of train A and Man =

$$= \frac{75}{60} \times \frac{5}{18} + 10 \times \frac{5}{18}$$

$$= 12.5 + \frac{50}{18}$$

$$= \frac{275}{18} \text{ m/s}$$

$$\text{Distance in } 9\frac{9}{11} \text{ sec} = \frac{275}{18} \times \frac{108}{11} = 150 \text{ m}$$

Length of train A = 150 m

$$\text{Distance in 24 sec} = 24 \times 12.5$$

$$= 300 \text{ m}$$

$$\text{Length of platform} = 300 - 150$$

$$= 150 \text{ m}$$

### S132. Ans.(c)

**Sol**

Let length of train C and train F be 3L and 5L respectively

Relative speed of train C to train F

$$= \frac{2000}{3 \times 60} \times \frac{18}{5} + \frac{1000}{60} \times \frac{18}{5}$$

$$= 40 + 60 = 100 \text{ km/hr}$$

$$= 100 \times \frac{5}{18} = \frac{500}{18} \text{ m/s}$$

According to question

$$\frac{500}{18} = \frac{3L+5L}{14.4}$$

$$L = 50 \text{ m}$$

Length of train C and F

$$C = 3 \times 50 = 150 \text{ m}$$

$$F = 5 \times 50 = 250 \text{ m}$$

$$T = \frac{150 + (150 + 50)}{\frac{2000}{3 \times 60}}$$

$$= \frac{350 \times 3 \times 60}{2000} = \frac{63}{2} \text{ sec}$$

**S133. Ans.(a)****Sol.** According to question

$$\text{Speed of train B} = \frac{180+180}{21.6} \times \frac{18}{5}$$

$$= 60 \text{ km/hr}$$

Speed of train E in km/hr

$$E \text{ speed} = \frac{300+300}{30} \times \frac{18}{5}$$

$$= \frac{600}{30} \times \frac{18}{5} = 72 \text{ km/hr}$$

Relative speed of train E and B when running in same direction

$$= 72 - 60 \times \frac{5}{18} = \frac{12 \times 5}{18}$$

$$= \frac{10}{3} \text{ m/s}$$

$$\text{Time taken by faster train to cross slower train} = \frac{(180+300) \times 3}{10}$$

$$= \frac{480 \times 3}{10} = 144 \text{ sec}$$

**S134. Ans.(a)****Sol.** Given,

Speed (m/s) : Taken time = 8x : 5x

$$8x = \frac{120+240}{5x}$$

$$40x^2 = 360$$

$$x = \sqrt{\frac{360}{40}} = 3$$

Speed of train D = 8 × 3 = 24 m/s

Taken time = 5 × 3 = 15 sec

$$\text{Required ratio} = \frac{\frac{120+600}{24}}{\frac{(200+600) \times 60}{1000}} = 5 : 8$$

**S135. Ans.(b)****Sol.** Given,

Speed of smaller train D = 54 km/hr

Speed of train B = V km/hr

Relative speed = (V - 54) km/hr

To cross the man, who sits in smaller train D, train B have to cross its own length with relative speed

$$= (V - 54) \times \frac{5}{18} = \frac{180}{24}$$

$$V = 81 \text{ km/hr}$$

$$\text{Required speed} = 81 \times \frac{5}{18}$$

$$= \frac{45}{2} \text{ m/s}$$

**S136. Ans.(b)****Sol.** Let number of lectures taken by professor on Monday and Tuesday each of second week be 'x'.

ATQ,

$$\left[ \frac{3}{4} \times 8 \times 2 + \frac{1}{2} \times x \times 2 + \frac{5}{3} \times 6 \times 2 + \frac{2}{3} \times 9 \times 2 \right] \times 4000 = 2,00,000$$

$$\Rightarrow 12 + x + 20 + 12 = 50$$

$$\Rightarrow x = 6$$

**S137. Ans.(c)****Sol.** Required amount =  $\frac{40}{60} [9 \times 2 \times 4000 + 8 \times 2 \times 6000 + 10 \times 2 \times 9000]$ 

$$= \frac{2}{3} [72,000 + 96,000 + 1,80,000]$$

$$= \frac{2}{3} [3,48,000] = 2,32,000 = \text{Rs. } 2.32 \text{ lakh}$$

**S138. Ans.(e)****Sol.** Let no. of lectures taken by professor on third week be 'x'

ATQ,

$$1,21,500 = 6000 \times \frac{45}{60} [7 + 5 + x + 8]$$

$$\Rightarrow 20 + x = 27$$

$$\Rightarrow x = 7$$

$$\text{Required \%} = \frac{7-5}{5} \times 100$$

$$= \frac{2}{5} \times 100 = 40\%$$

**S139. Ans.(b)****Sol.** Required ratio =  $\frac{5 \times 6000 \times 45}{10 \times 9000 \times 40}$ 

$$= 3 : 8$$

**S140. Ans.(c)****Sol.** Let no. of lectures given on Monday of second week be 'x'

$$\frac{112.5}{100} = \frac{[x \times 4000 \times 2 + 5 \times 6000 \times 2 + 6 \times 9000 \times 2] \times 60}{[8 \times 4000 \times 2 + 7 \times 6000 \times 2 + 6 \times 9000 \times 2] \times 45}$$

$$\Rightarrow \frac{9}{8} = \frac{4 [8000x + 1,68,000]}{3 [2,56,000]}$$

$$\frac{27}{32} = \frac{8000x + 1,68,000}{2,56,000}$$

$$\Rightarrow 8000x = 2,16,000 - 1,68,000$$

$$\Rightarrow 8000x = 48,000$$

$$\Rightarrow x = 6$$

**S141. Ans.(d)****Sol.** Let cost price of article X on Monday and Thursday be 400x and 500x respectively.

Selling price of article X on Thursday

$$= 500x \times \frac{175}{100} \times \frac{60}{100} = 525x$$

ATQ,

$$525x - 500x = 75$$

$$\Rightarrow x = \frac{75}{25} = 3 \text{ Rs.}$$

Mark price of article Y on Monday

$$= 400 \times 3 \times \frac{180}{100} \times \frac{5}{4} = 2700 \text{ Rs.}$$

$$\text{Selling price of article Y} = 2700 \times \frac{65}{100}$$

$$= 1755 \text{ Rs.}$$

$$\text{Required profit} = 1755 - 400 \times 3$$

$$= \text{Rs } 555$$



**S142. Ans.(b)**

**Sol.** Let cost price of article X and Y on Friday =  $100x$

$$\begin{aligned} \text{Selling price of article X} &= 100x \times \frac{150}{100} \times \frac{90}{100} \\ &= 135x \end{aligned}$$

Selling price of article Y =  $135x + 520$

ATQ,

$$135x - 100x + 135x + 520 - 100x = 1430$$

$$\Rightarrow 70x = 910$$

$$\Rightarrow x = 13$$

$$\text{Mark price of article Y on Friday} = 100x \times \frac{150}{100} \times \frac{7}{5} = 210x$$

$$= 210 \times 13 = 2730$$

$$\text{Required \%} = \frac{2730 - [135x + 520]}{2730} \times 100$$

$$= \frac{455}{2730} \times 100 = 16\frac{2}{3}\%$$

**S143. Ans.(e)**

**Sol.** Let cost price of article X and article Y on Wednesday be  $300x$  and  $400x$

$$\text{Mark price of article Y on Wednesday} = 400x \times \frac{126}{100} + 1008$$

$$= 504x + 1008$$

$$\text{Mark price of article Y also equals to} = 300x \times \frac{165}{100} \times \frac{14}{11} =$$

$$630x$$

$$\Rightarrow 630x = 504x + 1008$$

$$\Rightarrow x = \frac{1008}{126} = 8$$

$$\text{Selling price of article X} = 300x \times \frac{165}{100} \times \frac{70}{100}$$

$$= 300 \times 8 \times \frac{165}{100} \times \frac{70}{100}$$

$$= \text{Rs } 2772$$

Selling price of article Y =  $504x$

$$= 504 \times 8 = 4032$$

$$\text{Required difference} = 4032 - 2772 = 1260$$

**S144. Ans.(c)**

**Sol.** Let cost price of article X =  $100x$

Cost price of article Y =  $80x$

$$\text{Mark price of article Y on Tuesday} = 100x \times \frac{150}{100} \times \frac{4}{3} = 200x$$

$$\text{Selling price of article Y on Tuesday} = 200x \times \frac{60}{100} = 120x$$

$$\text{Profit \%} = \frac{120x - 80x}{80x} \times 100 = \frac{40}{80} \times 100 = 50\%$$

**S145. Ans.(d)**

**Sol.** Let cost price of article X on Monday, Tuesday, Wednesday, Thursday and Friday be  $100x$ ,  $200x$ ,  $300x$ ,  $400x$  and  $500x$  respectively.

Profit on selling article X on Monday

$$= 100x \times \frac{180}{100} \times \frac{80}{100} - 100x = 44x$$

Profit on selling article X on Tuesday

$$= 200x \times \frac{150}{100} \times \frac{80}{100} - 200x = 40x$$

Profit on selling article X on Wednesday

$$= 300x \times \frac{165}{100} \times \frac{70}{100} - 300x = 46.5x$$

Profit on selling article X on Thursday

$$= 400x \times \frac{175}{100} \times \frac{60}{100} - 400x = 20x$$

Profit on selling article X on Friday

$$= 500x \times \frac{150}{100} \times \frac{90}{100} - 500x = 175x$$

$$\text{Total profit} = 44x + 40x + 46.5x + 20x + 175x$$

$$= 325.5x$$

ATQ,

$$44x = 176$$

$$\Rightarrow x = 4$$

$$\text{Total profit} = 325.5x = 325.5 \times 4 = \text{Rs } 1302$$

**Sol.**

**(146-150)**

	Mond ay	Tuesd ay	Wednesd ay	Thursd ay	Frida y
<b>Hero</b>	180	150	250	150	180
<b>Bajaj</b>	160	220	200	180	140
<b>Hond a</b>	200	200	300	250	200
	540	570	750	580	520

**S146 Ans.(b)**

$$\text{Sol. } \frac{540}{750} = 18 : 25$$

**S147. Ans.(a)**

**Sol.** Total number of bikes produced by Bajaj from Monday to Friday = 900

**S148. Ans.(e)**

$$\text{Sol. Required average} = \frac{1150}{5} = 230$$

**S149. Ans.(c)**

**Sol.** No. of bikes produced on Tuesday and Thursday is same i.e. 150

**S150. Ans.(c)**

**Sol.** Maximum number of bikes produced = 750, on Thursday.

**S151. Ans.(b)**

**Sol.** ATQ,

$$8000 + \frac{8000 \times 4 \times R}{100} = 10,000 \left[ 1 + \frac{R}{100} \right]^2$$

$$\Rightarrow 320R = 10,000 + R^2 + 200R - 8000$$

$$\Rightarrow R^2 - 120R + 2000 = 0$$

$$\Rightarrow R^2 - 100R - 20R + 2000 = 0$$

$$\Rightarrow R(R - 100) - 20(R - 100) = 0$$

$$\Rightarrow (R - 20)(R - 100) = 0$$

$$\Rightarrow R = 20\%, 100\%$$

**S152. Ans.(e)**

**Sol.** Let he buy 'x' eggs out of which 'y' are rotten.

ATQ,

$$\text{Total C.P.} = 10x$$

$$\text{Total S.P.} = \frac{108}{100} \times 10x = 10.8x$$

$$10.8x = 10y \times \frac{80}{100} + 10(x - y) \times \frac{150}{100}$$

$$1080x = 800y + 1500x - 1500y$$

$$700y = 420x$$

$$\Rightarrow \frac{x}{y} = \frac{700}{420} = \frac{5}{3}$$

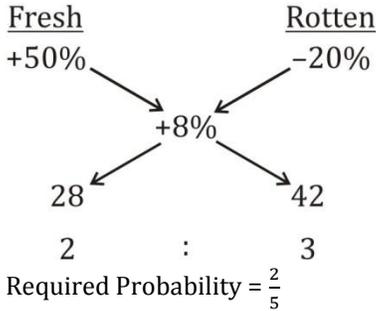
Let total eggs = 5a

Rotten eggs = 3a

$$\text{Required probability} = \frac{2a}{5a} = \frac{2}{5}$$

Alternative,

Use Allegation method



**S153. Ans.(a)**

**Sol.** Area of hexagon = Area of 6 equilateral triangles = Area of 3 parallelograms = Area of 2 equilateral triangle + Area of 2 parallelograms

$$\Rightarrow \text{Area of parallelogram} = \frac{6}{3} \times 4\sqrt{3} = 8\sqrt{3}$$

Let, side of equilateral  $\Delta = a$

$$\frac{\sqrt{3}}{4} a^2 = 4\sqrt{3}$$

$$\Rightarrow a = 4$$

Area of parallelogram =  $a \times h$

Where  $a =$  side of hexagon on equilateral triangle = 4 cm

and  $h =$  height of parallelogram

$$\text{So, } 8\sqrt{3} = 4 \times h$$

$$\Rightarrow h = 2\sqrt{3} \text{ cm}$$

**S154. Ans.(e)**

**Sol.** Total 100% work in completed by all four.

Let A, B, C and D worked  $(a - 2d)$ ,  $(a - d)$ ,  $(a)\%$  and  $(a + d)\%$  work.

$$a - 2d + a - d + a + a + d = 100\%$$

$$4a - 2d = 100\%$$

$$\text{But } a = 30\%$$

$$\Rightarrow d = 10\%$$

A, B, C and D completed 10%, 20%, 30% and 40% work.

C completes 30% work in 9 days.

C completes 100% work in 30 days.

B completes 20% work in 3 days.

B completes 100% work in 15 days.

A completes 10% work in 2 days.

A completes 100% work in 20 days.

Let D alone can complete 100% work in 'd' days.

$$\frac{4}{30} + \frac{4}{15} + \frac{4}{20} + \frac{4}{d} = 1$$

$$\Rightarrow \frac{1}{d} = \frac{1}{4} - \left[ \frac{1}{30} + \frac{1}{15} + \frac{1}{20} \right]$$

$$\Rightarrow \frac{1}{d} = \frac{1}{10}$$

$$\Rightarrow d = 10$$

D can complete 100% work in 10 days.

$\Rightarrow$  D can complete 40% work in 4 days.

**S155. Ans.(b)**

**Sol.** Let the total volume of tank is 100m.

Let efficiency of pipe B is  $6x/\text{hour}$

And that of pipe A is  $8x/\text{hour}$

Water flowing in the tank when all three pipes were opened in an hour =  $6x + 8x - 40$

=  $14x - 40$  ltr. (This is 25% of volume of tank + 10 liters)

Water filled in tank in initial  $\frac{13}{7}$  hours is  $14x \times \frac{13}{7} = 26x$  liters

Now this  $14x - 40 + 26x = 40x - 40$  is total volume of tank.

Now 25% of this total volume is  $\frac{25}{100} \times (40x - 40) = 10x - 10$

ATQ,

$$10x - 10 + 10 = 14x - 40$$

$$4x = 40$$

$$x = 10 \text{ liters}$$

Hence, volume of tank is  $4x - 40 = 40 - 40 = 360$  litres.

Hence, C will fill tank in  $\frac{360}{40} = 9$  hours.

**S156. Ans.(b)**

**Sol.** Let A fills  $8x/\text{hour}$  water.

While B fills  $6x/\text{hour}$  water

When all pipes were opened together

They will fill  $(8x + 6x - 40)$  liters/hour.

$14x - 40$  liters is 10 liters less than 25% of tank's efficiency.

It means 25% efficiency of the tank will be  $(14x - 30)$  liters.

Total efficiency of tank will be  $\frac{100}{25} (14x - 30) = 56x - 120$ .

In 4 hours, pipe A will fill  $8x \times 4 = 32x$  liters.

ATQ,

$$32x = 56x - 120$$

$$x = 5.$$

Hence volume of tank is  $32 \times 5 = 160$  liters.

**S157. Ans.(d)**

**Sol.**

$$\text{speed of boat in still water} = \left( 10 + 10 \times \frac{80}{100} \right) \text{ km/hr}$$

$$= 18 \text{ km/hr}$$

ATQ—

$$\frac{280}{(18+10)} + \frac{280}{(18+10)+s} + \frac{560}{(18-10)+s} = 45$$

$$\frac{280}{28+s} + \frac{560}{8+s} = 35$$

$$\frac{8}{28+s} + \frac{16}{8+s} = 1$$

$$64 + 8s + 448 + 16s = 224 + 28s + 8s + s^2$$

$$s^2 + 12s - 288 = 0$$

$$s = 12 \text{ km/hr}$$

**S158. Ans.(c)**

**Sol.** Let investment of A, B, C and D is a, b, c and d respectively.

A                      B                      C                      D

Now in first year  $\rightarrow a \times 12 : b \times 12 : c \times 12$

In 2nd year  $\rightarrow 2a \times 12 : \frac{4b}{3} \times 12 : \frac{6c}{5} \times 12$

In 3rd year  $\rightarrow \frac{6c}{5} \times 12 : d \times 12$

A : B : C : D

$$\Rightarrow (a \times 12 + 2a \times 12) : (b \times 12 + \frac{4}{3}b \times 12) : c \times 12 + 2\frac{6}{5}c \times 12 : d \times 12$$

$$3a : \frac{7b}{3} : \frac{17}{5}c : d = 12 : 14 : 17 : 8$$

$$\Rightarrow a : b : c : d = 4 : 6 : 5 : 8$$

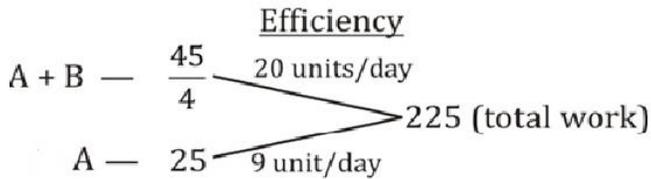
Difference between B and C initial investment = 1150

Total Investment of A and D together

$$= \frac{1150}{1} \times 12 = 13800$$

**S159. Ans.(a)**

**Sol.**



For second work

$$\text{Efficiency of A} = 9 \times \frac{11}{9} = 11 \text{ units/day}$$

$$\text{Efficiency of B} = 11 \times \frac{9}{11} = 9 \text{ units/day}$$

$$\text{Work done by A} = 11 \times x = 11x \text{ units.}$$

$$\text{Work done by B} = 9 \times (x + 4) = (9x + 36) \text{ units}$$

ATQ,

$$\frac{(9x+36)-11x}{20x+36} = \frac{1}{23}$$

$$\Rightarrow 828 - 46x = 20x + 36$$

$$\Rightarrow 66x = 792$$

$$\Rightarrow x = 12$$

$$\text{Required time} = \left(\frac{20 \times 12 + 36}{20}\right) = 13\frac{4}{5} \text{ days.}$$

**S160. Ans.(d)**

**Sol.** Let original marked price be Rs 100x.

$$\text{Then, New marked price of that article} = 100x \times \frac{225}{100} =$$

$$\text{Rs } 225x$$

Selling price of article

$$= 225x \times \frac{3}{4} \times \frac{4}{5} \times \frac{8}{9}$$

$$= \text{Rs } 120x$$

C.P. of article

$$= 120x \times \frac{100}{125}$$

$$= \text{Rs } 96x$$

$$\text{Profit in first case} = 120x - 96x = 24x$$

2<sup>nd</sup> selling price

$$= 225x \times \frac{7}{8} \times \frac{2}{3} \times \frac{5}{6}$$

$$= \text{Rs } \frac{875x}{8}$$

ATQ

$$24x - \left(\frac{875x}{8} - 96x\right) = 255$$

$$\frac{85}{8}x = 255$$

$$x = 24$$

$$\text{cost price} = 96 \times 24 = \text{Rs } 2304$$

**S161. Ans.(b)**

**Sol.** Difference between second year's interests

$$= 12000 \left(1 + 7\frac{1}{2}\%\right) \left(6\frac{1}{4}\%\right) - 12000 \left(5\frac{4}{5}\%\right)$$

$$= 12000 \left(\frac{43}{40}\right) \left(\frac{1}{16}\right) - 12000 \left(\frac{29}{5}\%\right)$$

$$= 806.25 - 696$$

$$= \text{Rs.} 110.25$$

**S162. Ans.(c)**

**Sol.** Loan of Rs.20480 is settled by paying Rs.27778 after five years. Simple interest is applicable for first three years while compound interest is applicable for next two years.

$$27778 = 20480 \left(1 + \left(8\frac{3}{4}\% + 5\frac{1}{4}\% + 4\frac{3}{4}\%\right)\right) \left(1 + 7\frac{1}{2}\%\right) \left(1 + \frac{x}{100}\right)$$

$$27778 = 20480 \left(1 + \left(18\frac{3}{4}\%\right)\right) \left(1 + 7\frac{1}{2}\%\right) \left(1 + \frac{x}{100}\right)$$

$$27778 = 20480 \left(\frac{19}{16}\right) \left(\frac{43}{40}\right) \left(1 + \frac{x}{100}\right)$$

$$x = 6\frac{1}{4}\%$$

**S163. Ans.(d)**

**Sol.**

Let the amounts borrowed under plan B and C be 19x and 13x respectively.

∴ Ratio of interests

$$= 16x \times \left(\left(1 + 7\frac{1}{2}\%\right) \left(1 + 6\frac{1}{4}\%\right) - 1\right) : 13x \times \left(8\frac{3}{4}\% + 5\frac{1}{4}\%\right)$$

$$= 16x \times \left(\left(\frac{43}{40}\right) \left(\frac{17}{16}\right) - 1\right) : 13x \times \left(\frac{14}{100}\right)$$

$$= 16x \times \frac{91}{640} : 13x \times \frac{14}{100}$$

$$= 5 : 4$$

**S164. Ans.(c)**

**Sol.** Effective rate of interests for three years:

$$\text{For old plan C} = 8\frac{3}{4}\% + 5\frac{1}{4}\% + 4\frac{3}{4}\% = 18\frac{3}{4}\%$$

$$\text{For new plan C} = 3 \times 6\frac{2}{3}\% = 20\%$$

% Increase in interest = % Increase in effective interest rate for three years

$$= \frac{(20 - 18\frac{3}{4})}{18\frac{3}{4}} \times 100$$

$$= 6\frac{2}{3}\%$$

**S165. Ans.(a)**

**Sol.** Let the amount borrowed under plan A be Rs.x

Effective rate of interests for three years:

$$\text{For plan A} = 8\frac{2}{3}\% + 6\frac{2}{3}\% + 3\frac{2}{3}\% = 19\%$$

$$\text{For plan E} = 7\frac{3}{5}\% + 5\frac{4}{5}\% + 4\frac{3}{5}\% = 18\%$$

$$\text{Total interest} = 19\% \text{ of } x + 18\% \text{ of } (30000 - x)$$

$$\Rightarrow 5540 = 18\% \text{ of } 30000 + 1\% \text{ of } x$$

$$\Rightarrow x = \text{Rs.} 14000$$

**S166. Ans.(c)****Sol.** Candidate of party XYZ obtained

$$= \frac{25}{100} \times 300000$$

$$= 75000 \text{ votes}$$

Therefore, Total votes polled in constituency B

$$= \frac{100}{25} \times 70000$$

$$= 30000$$

Runner up candidate got =  $75000 - 7000 = 68000$ 

Now for maximum number of candidates, all of the other should get min. possible votes

$$= \text{Remaining votes} = 300000 - [75000 + 68000] = 157000$$

Min. votes possible 12000

$$\text{Maximum candidates} = \frac{157000}{12000} \approx 13$$

Hence total number of candidates is  $13 + 2 = 15$ **S167. Ans.(a)****Sol.** Votes scored by party XYZ from C

$$= \frac{37.5}{100} \times 300000 = 112500$$

As party obtained 50% votes, therefore

Total votes polled in constituency E

$$= 2 \times 112500 - 45000$$

$$= 225000 - 45000$$

$$= 180000$$

Votes scored by winner candidates from E

$$= \frac{65}{100} \times 180000$$

$$= 117000$$

Votes scored by party from E

$$= \frac{12.5}{100} \times 300000$$

$$= 37500$$

Required answer =  $117000 - 37500 = 79500$ **S168. Ans.(a)****Sol.** Votes secured by party XYZ from A

$$= \frac{10}{100} \times 300000 = 30000$$

Votes secured by party XYZ from D

$$= \frac{15}{100} \times 30000 = 45000$$

If party wins from A, total votes from A

$$= \frac{100}{30} \times 3000 = 100000$$

votes from D

winner candidate got =  $45000 + 15000 = 60000$  votesTotal votes polled in D =  $\frac{100}{40} \times 60000 = 150000$  votesDifference =  $150000 - 100000 = 50000$ 

If party wins from D, total votes from D

$$= 45000 \times \frac{100}{40}$$

$$= 112500$$

&amp; winner candidate from A got

$$= 30000 + 15000$$

$$= 45000 \text{ votes}$$

Total votes polled in constituency A

$$= \frac{10}{30} \times 45000$$

$$= 150000$$

Difference = 37500.

But maximum difference is of 50000, hence option a is the answer.

**S169. Ans.(b)****Sol.** Votes scored by winner candidate in constituency E

$$= \frac{65}{100} \times 180000$$

$$= 117000$$

Votes scored by party XYZ

$$= \frac{12.5}{100} \times 300000$$

$$= 37500$$

They lost by  $117000 - 37500 = 79500$  votes

Hence winner candidate from constituency A got

$$= 30000 + 79500$$

$$= 109500$$

Hence votes polled in A

$$= \frac{100}{30} \times 109500$$

$$\approx 365000$$

**S170. Ans.(d)****Sol.** (i)

If Party XYZ wins from C, total votes polled in constituency is

$$= 2 \times \frac{37.5}{100} \times 300000$$

$$= 225000$$

Candidate of party XYZ got 75000 votes from constituency B.

If these constituencies have equal votes, winner candidate gets

$$= \frac{25}{100} \times 225000$$

$$= 57750$$

Hence it is not possible.

(ii) Party got, 37500 votes from E, which is 35% of total polled votes (If we assume only 2 candidates). Hence winner must have more than twice votes.

It is also not possible.

(iii) It is possible, and we can't check it whether party lost or won.

(iv) it is also possible, as we don't have information on number of votes.

**S171. Ans.(a)****Sol.** Total surface area of the toy = C.S.A of cone + C.S.A of Hemisphere

Let, slant height of cone

$$\pi r \ell + 2\pi r^2 = 858 \text{ cm}^2$$

$$\pi r(\ell + 2r) = 858 \text{ cm}^2$$

$$\ell = 25 \text{ cm}$$

height of cone = 24cm

volume of the toy

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

$$= \frac{1}{3} \pi r^2 (h + 2r)$$

$$= 1950 \frac{2}{3} \text{ cm}^3$$

**S172. Ans.(e)****Sol.** Height of cylinder = 12 cmHeight of toy is  $\frac{11}{4}$ th of the height of cylinder = 33 cm

Edges of cube = 33 - 12 = 21 cm

C.S.A of cylinder =  $2\pi rh = 66 \times h$  $r = 10.5$  cmTotal surface area of toy =  $(6a^2 - \pi r^2) + 2\pi rh + \pi r^2$  $(-\pi r^2, \text{ area subtracted due to alignment})$ 

$$= 6 \times 21 \times 21 + 2 \times \frac{22}{7} \times 12 \times 10.5 = 3438 \text{ cm}^2$$

**S173. Ans.(c)****Sol.** Sphere radius =  $\frac{21}{2}$ So, cylinder radius =  $\frac{21}{2}$ 

height of cylinder = 12

required ratio

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

$$\frac{4}{3}r + h : h : \frac{4}{3}r$$

$$13 : 6 : 7$$

**S174. Ans.(d)****Sol.** Volume of cone =  $\frac{1}{3}\pi r^2 h$ 

$$= \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 24 = 1232 \text{ cm}^3$$

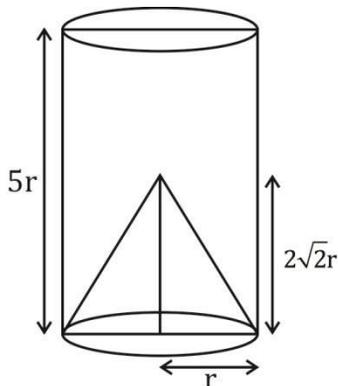
Volume of cuboid

$$= 24 \times 10 \times 25\% \text{ of } 24$$

$$= 1440 \text{ cm}^3$$

$$\text{Difference} = 1440 - 1232 = 208 \text{ cm}^3$$

$$\text{Required \%} = \frac{208}{1232} \times 100 = 16.88\% \approx 17\%$$

**S175. Ans.(c)****Sol.**Total surface area of cone =  $\pi r \times \text{slant height} + \pi r^2$ 

$$= \pi r (\ell + r)$$

$$= \pi r (\sqrt{8r^2 + r^2} + r)$$

$$= \pi r (4r)$$

$$= 4\pi r^2$$

Total surface area of remaining part of cylinder

$$= \pi r^2 + 2\pi rh + \pi r \ell$$

$$= \pi r (r + 2h + \ell)$$

$$= \pi r (r + 10r + 3r)$$

$$= 14 \pi r^2$$

Required ratio = 2 : 7

**Solution (176-180)**

Let taxi P travelled x km.

So,

In 1 litre taxi P travel 10 km

In  $\frac{1}{10}$  litre taxi P travel 1kmIn  $\frac{x}{10}$  litre taxi P travel 'x' km

Price of petrol is Rs. 60/litre

$$\text{So, Amount paid for petrol} = \frac{60x}{10} = \frac{\text{Distance travelled}}{\text{Mileage}} \times 60$$

Total amount paid = Amount for petrol + 5 × Distance travelled

$$\therefore \text{Total amount paid to taxi 'P'} = \frac{x}{10} \times 60 + x \times 5 = 2640$$

$$\Rightarrow x = 240 \text{ km}$$

Distance travelled by taxi 'P' = 240 km

Similarly

For taxi 'Q'

$$\frac{q}{12} \times 60 + q \times 5 = 3500 \text{ (q= distance travelled by Q)}$$

Distance travelled by taxi 'Q' = 350 km

For taxi 'R'

$$\frac{r}{15} \times 60 + r \times 5 = 2592 \text{ (r= distance travelled by R)}$$

Distance travelled by taxi 'R' = 288 km

For taxi 'S'

$$\frac{s}{18} \times 60 + s \times 5 = 4500 \text{ (s= distance travelled by S)}$$

Distance travelled by taxi 'S' = 540 km

For taxi 'T'

$$\frac{t}{14} \times 60 + t \times 5 = 2925 \text{ (t= distance travelled by T)}$$

Distance travelled by taxi 'T' = 315 km

**S176. Ans.(c)****Sol.** Distance travelled by taxi 'Q' = 350 km

If millage of Q decreases by 2

So, amount paid to Q

$$= \frac{350}{12-2} \times 60 + 350 \times 5$$

$$= 3850$$

Distance travelled by taxi 'S' = 540 km

If millage of S decreases by 2

So, amount paid to S

$$= \frac{540}{(18-2)} \times 60 + 540 \times 5 = 4725$$

$$\text{Increase in amount} = (3850 + 4725) - (3500 + 4500) = 575$$

**S177. Ans.(d)****Sol.** Distance travelled by Q = 350 km

$$\text{Average speed of Q} = \frac{350}{25} = 14 \text{ km/hr}$$

Distance travelled by taxi 'P' = 240 km

$$\text{Average speed of P} = \frac{240}{16} = 15 \text{ km/hr}$$

$$\text{Required \%} = \frac{15-14}{15} \times 100 = \frac{20}{3}\% = 6\frac{2}{3}\%$$

**S178. Ans.(a)****Sol.** Distance travelled by S = 540 kmAverage speed of S =  $\frac{540}{30} = 18$  km/hr

Let two speeds with which taxi S travel is 3x km/hr and 2x km/hr

So,

$$\frac{2 \times 3x \times 2x}{3x+2x} = 18$$

$$\frac{12x}{5} = 18$$

$$x = \frac{18 \times 5}{12} = 7.5$$

Time for higher speed =  $\frac{270}{3 \times 7.5} = 12$  hour

Alternate,

Speed is inversely proportional to time if distance is same

So,

Higher speed : Slower speed = 3 : 2

Time in Higher Speed : Time in lower speed = 2 : 3

Total time = 30 hours

If 5 → 30

$$\Rightarrow 2 \rightarrow \frac{30}{5} \times 2 = 12 \text{ hours}$$

**S179. Ans.(d)****Sol.** Distance travelled by taxi 'R' = 288 km

Distance travelled by taxi 'T' = 315 km

Average speed of R =  $\frac{288}{18} = 16$  km/hrAverage speed of T =  $\frac{315}{15} = 21$  km/hr

Ratio = 16 : 21

**S180. Ans.(e)****Sol.** Distance travelled

P → 240 km

Q → 350 km

R → 288 km

S → 540 km

T → 315 km

$$\text{Required Average} = \frac{240+350+288+540+315}{5} = 346.6 \text{ km}$$

**S181. Ans.(e)****Sol.** Let initial quantity of milk and water be 9x lit and 2x lit respectively.

ATQ

$$\frac{9x - 44 \times \frac{9}{11}}{2x - 44 \times \frac{2}{11} + 12} = \frac{3}{1}$$

$$\Rightarrow x = 16 \text{ lit}$$

New quantity of milk =  $9 \times 16 - 36 + 64 \times \frac{3}{8} = 132 \text{ lit}$ And that of water =  $2 \times 16 - 8 + 12 + 64 \times \frac{5}{8} = 76 \text{ lit}$ Required ratio =  $\frac{132}{76} = 33:19$ **S182. Ans.(d)****Sol.** Let present age of Simmi and Rimmi be 4x yr and 3x yr respectively

And let present age of Rina be y yr.

ATQ

$$\frac{4x+6}{y} = \frac{3}{1}$$

$$4x + 6 = 3y \dots\dots\dots (i)$$

And

$$\frac{3x}{y} = \frac{2}{1}$$

$$\Rightarrow 3x = 2y \dots\dots\dots (ii)$$

From (i) and (ii)

$$y = 18 \text{ yr}$$

present age of Simmi = 48 yr

and that of Rimmi = 36 yr

$$\text{required average} = \frac{18+48+36}{3} = 34 \text{ yr}$$

**S183. Ans.(d)****Sol.** Let the value of x and y be 9a and 7a respectively

$$CP = \frac{720 \times 100}{(100+9a)}$$

Now,

$$SP = \frac{720 \times 100}{(100+9a)} \text{ \& CP = Rs. 720}$$

ATQ,

$$\frac{720 \times 100 \times 100}{(100+9a) \times (100-7a)} = 720$$

$$\Rightarrow 10000 = 10000 + 200a - 63a^2$$

$$\Rightarrow 63a^2 - 200a = 0$$

$$\Rightarrow a = 0 \text{ or } a = \frac{200}{63}$$

$$\text{Required SP} = \frac{720 \times (100 + 7 \times \frac{200}{63})}{100} = 880$$

**S184. Ans.(b)****Sol.** Let length and breadth of first rectangular field is x cm and y cm respectivelyArea of first rectangular field = xy cm<sup>2</sup>

$$\text{Length of second field} = \frac{x \times 100}{(100-a)} \text{ cm}$$

$$\text{Breadth of second field} = \frac{x \times 100}{(100+4a)} \text{ cm}$$

ATQ,

$$\frac{x \times 100}{(100-a)} \times \frac{y \times 100}{(100+4a)} = xy$$

$$\Rightarrow 10000 = (100 - a)(100 + 4a)$$

$$\Rightarrow 10000 = 10000 + 400a - 100a - 4a^2$$

$$\Rightarrow 4a^2 - 300a = 0$$

$$\Rightarrow a = 0 \text{ or } 75.$$

**S185. Ans.(b)****Sol.** Let the amount of Aman and Vikash be Rs. 3x and 5x respectively.

Total amounts = Rs. 8x

Total amounts after 2 years

$$= 3x \times \left(1 - \frac{20}{100}\right)^2 + 5x \times \left(1 + \frac{20}{100}\right)^2$$

$$= \left(3x \times \frac{4}{5} \times \frac{4}{5}\right) + \left(5x \times \frac{6}{5} \times \frac{6}{5}\right)$$

$$= 1.92x + 7.2x = 9.12x$$

Change = Rs. 9.12x - 8x = Rs. 1.12x

$$\% \text{ change} = \frac{1.12x \times 100}{8x} = 14\%$$



**S196. Ans.(c)****Sol. From I -**Let income of Sameer =  $25x$ So, income of Veer =  $25x \times \frac{96}{100} = 24x$ Let expenditure of Veer =  $7y$ So, expenditure of Sameer =  $8y$ Deepak spend  $\frac{3}{5}$  th of his income.**From II -**

Saving of Sameer = 7000 Rs.

Saving of Veer = 7400

And, Income of Deepak is Rs. 1000 more than that of Sameer

**From I & II -**

$$\frac{(25x-7000)}{(24x-7400)} = \frac{8y}{7y}$$

$$17x = 10200 \Rightarrow x = 600 \text{ Rs.}$$

Income of Deepak =  $25 \times 600 + 1000 = 16000 \text{ Rs.}$ Saving of Deepak =  $\frac{2}{5} \times 16000 = 6400 \text{ Rs.}$ Respective ratio of saving of Veer & Deepak =  $7400 : 6400 = 37 : 32$ 

So, Statement I &amp; II together is sufficient to give answer of the question.

**S197. Ans.(b)****Sol.** Let cost price =  $100x$ Marked price =  $140x$ **From I -**

$$140x \times \frac{75}{100} - 100x = 50$$

$$5x = 50 \Rightarrow x = 10 \text{ Rs.}$$

Cost price = 1000 Rs.

Statement I alone is sufficient.

**From II -**

$$(140x \times \frac{6}{7} \times \frac{90}{100}) - 100x = 80$$

$$8x = 80 \Rightarrow x = 10 \text{ Rs.}$$

Cost price = 1000 Rs.

Statement II alone is sufficient.

So, either statement I or II alone is sufficient to give answer of the question.

**S198. Ans.(a)****Sol.** Given, number of green balls = 5So, let total number of blue balls =  $x$ So, number of red balls =  $(7 - x)$ **From I -**

$$\frac{x}{12} + \frac{7-x}{12} = \frac{7}{12}$$

So, we can't determine value of  $x$  from statement I**From II -**

$$\frac{x(x-1)}{12 \times 11} + \frac{(7-x)(6-x)}{12 \times 11} = \frac{1}{6}$$

$$2x^2 - 14x + 42 = 22$$

$$2x^2 - 14x + 20 = 0$$

$$2x^2 - 10x - 4x + 20 = 0$$

$$2x(x-5) - 4(x-5) = 0$$

$$x = 2, 5$$

From II alone we can determine the difference between blue &amp; red balls in the bag.

So, only statement II alone is sufficient to give answer of the question.

**S199. Ans.(b)****Sol.** Let radius of circle =  $r$  cmSo, side of square =  $r + 3.5$  cm**From I -**

$$2 \times \frac{22}{7} \times r - 2r = 45$$

$$r = 10.5 \text{ cm}$$

side of square =  $10.5 + 3.5 = 14$  cmArea of square =  $196 \text{ cm}^2$ 

Statement I alone is sufficient to give answer.

**From II -**Let breadth of rectangle =  $2x$ So, radius of circle will be =  $3x$ **ATQ -**

$$\frac{2 \times \frac{22}{7} \times 3x}{2(2x+15)} = \frac{3}{2}$$

$$x = 3.5 \text{ cm}$$

Radius of circle = 10.5 cm

side of square =  $10.5 + 3.5 = 14$  cmArea of square =  $196 \text{ cm}^2$ 

So, either statement I or Statement II alone is sufficient.

**S200. Ans.(e)****Sol. From I -**

Difference between speed of train A &amp; B = 10 meters/sec

And, length of train B = 240 meters

From I, we can't determine

**From II -**

Train B cross pole in 8 sec

And train B cross train A in 12 sec

From II, we can't determine

**From I & II -**

$$\text{Speed of train B} = \frac{240}{8} = 30 \text{ meters/sec}$$

$$\text{Speed of train A} = 30 - 10 = 20 \text{ meters/sec}$$

Let length of train A =  $L$  meters

$$\text{So, } (30 + 20) = \frac{240+L}{12}$$

$$L = 600 - 240$$

$$L = 360 \text{ meters}$$

So, Statement I and II both together sufficient to give answer of the questions

