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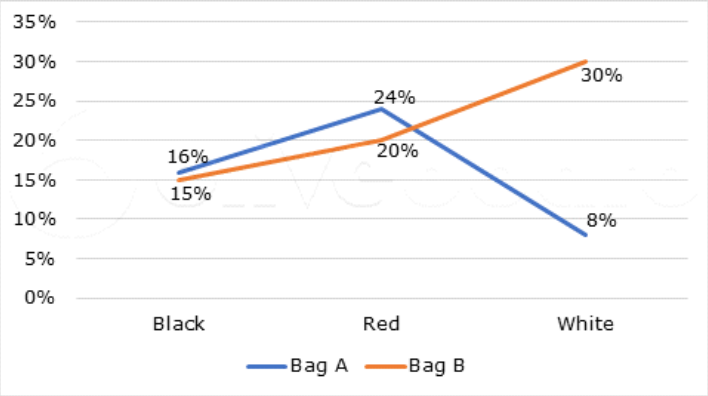
100 HIGH LEVEL DATA INTERPRETATION

QUESTIONS & SOLUTIONS

FOR IBPS & SBI MAIN EXAMS

Directions [Set of 3 questions]: Line graph given below shows the probability per cent of randomly drawing a different colour ball (Black, Red, White, Blue and Yellow) from two bags A and B.



Note 1: Total number of blue colour balls in bag A is 10 and total number of yellow colour balls in bag B is 10.

Note 2: Probability of drawing a yellow colour ball from bag A is 8/25.

Note 3: Probability of drawing a blue colour ball from bag B is 1/10.

Q1. What is the ratio of probability of drawing two black colour balls from bag A at random to the probability of drawing two blue colour balls from bag B at random?

A) 14: 33

B) 104: 35

C) 14: 135

D) 104: 135

E) None of these

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Q2. If one ball from each bag is drawn at random, then what is the probability of the event, that one red ball is from bag B and one yellow ball is from bag A?

A) 2/5

B) 8/125

C) 13/25

D) 12/25

E) None of these

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Q3. If 10 balls are taken out from bag A and put into bag B and now the probability of selecting a blue ball from bag A is 3/20, then what is the probability of selecting a blue ball from bag B after transferring?

A) 1/10

B) 2/25

C) 3/50

D) 4/25

E) None of these

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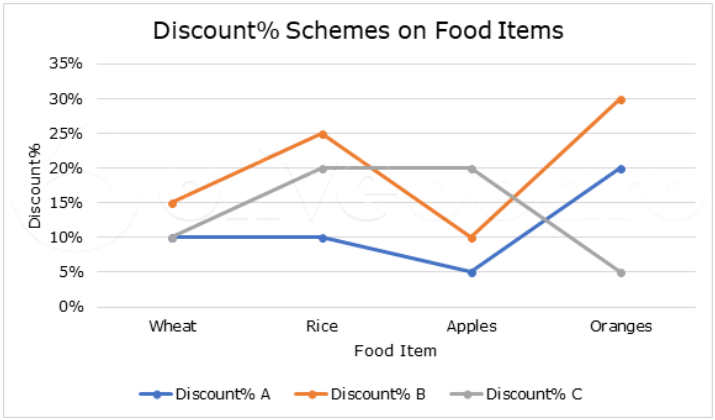
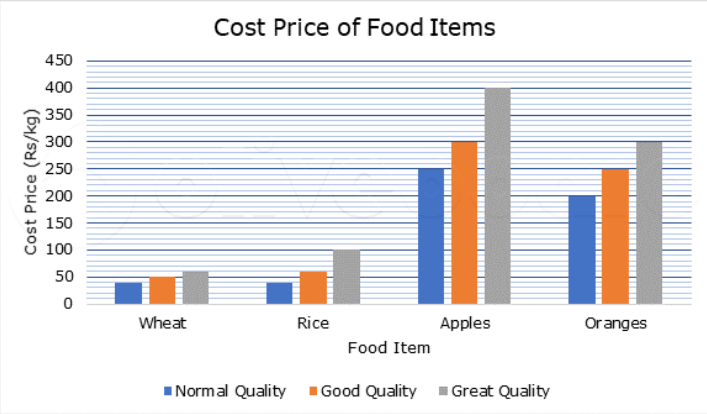
Directions [Set of 5 questions]: The line graph shows different Discount% Schemes and the bar graph shows the Cost Price of those Food Items in Rs per kilogram. Food items are classified according to their quality: Normal Quality, Good Quality and Great Quality.





Q4. A shopkeeper mixes 4 kgs of Normal Quality Wheat with 6 kgs of Good Quality Wheat sells dishonestly as Great Quality Wheat claiming to offer discount on Cost price. If Discount% A and C are successively applied, the profit% earned by this Transactions is (x/23)%. In other case, for Rice, Great Quality, Good Quality and Normal Quality are mixed in the ratio 1:1:2 but sold mistakenly as Normal Quality Rice applying successive discounts% A and B. For no Profit or loss, the rice is marked up by (y/9)%. What is the value of (y+200)/x?

A) 8

B) 10

C) 12

D) 15

E) 20

==========

Q5. 4 kgs of Normal quality Apples are mixed with 'x' kgs of Good Quality Apples and the mixture is marked up by 25%. Discount% B and C are applied successively such that the overall loss from selling the mixture is Rs 26. Normal quality Oranges are mixed with a new type of Orange with price Rs 'y'/kg in the ratio 3:2. The mixture is marked up by Rs 320/kg and Discount% A and B are applied, and it is sold at a profit of 20%. What is the value of (y - 10x)/13?

A) 30

B) 8

C) 6

D) 12

E) 15

==========

Q6. What is the ratio of the difference between the Selling price of Rice and Wheat if all 3 qualities of Wheat are mixed equally and Normal, Good and Great quality of Rice are mixed in the ratio 2:2:1 and mark-up for both items is 50%, to the difference between the selling price of Apples and Oranges if Normal, Good and great quality of Oranges are mixed equally and Apples are mixed in the ratio 2:1:1 mark-up for both is 40%? Given that Discount% A is applied for Wheat and Rice and Discount % C is applied for Apples and Oranges.

A) 22:7

B) 27:7

C) 23:11

D) 27:11

E) 23:13

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Q7. The ratio in which a shopkeeper must mix Normal and Great quality rice such that he earns a profit of Rs 5 after a mark-up of Rs 45 and applying Discount% B and C, is x:1 and the ratio in which the shopkeeper must mix Good and Great Quality Apples such that the selling price is Rs 441/kg after marking up by 40% and using Discount% B, is 1:y. What is the value of $2x^2 - 3y^2$?

A) 12

B) 8

C) 10

D) 20

E) 15

==========

Q8. If Normal and Good quality Apples are mixed in the ratio 3:2 and sold dishonestly as Great quality Apple applying all 3 discount schemes successively claiming them to be applied on Cost price, what is the profit earned by the seller?

A) 2%

B) 1%

C) 2.66%

D) 1.33%

E) 3.33%

==========

Directions : Following table shows the ratio of volumes of Milk, Water and Honey in four solutions.

Solution	Ratio of volumes of Milk, Water and Honey
1	45: W: 2
2	30: 10: H
3	M: 5: 1
4	18: 7: 2

Q9. The total volume of solution 4 is 540 ml and ratio of total volume of water in solutions 3 and 4 together to the total volume of Honey in solutions 3 and 4 together is 95: 22. If the ratio of total volume of milk in solutions 3 and 4 together to the total volume of water in solutions 3 and 4 together is 42: 19, then what is the value of M?

A) 10

B) 6

C) 4

D) 2

E) Can't be determined

==========

Q10. If the difference between the volumes of water and honey in solution 2 is 270 ml and the difference between the volumes of milk and water in solution 2 is 600 ml, then what is the volume of honey in solution 2?(it is given that the respective part of honey is least in the solution 2)

A) 90 ml

B) 100 ml

C) 300 ml

D) 30 ml

E) None of the above.

==========

Q11. If the ratio of total volumes of solutions 1 and 4 is 5:3 and the total volume of water in solutions 1 and 4 together is 570 also the total volume of honey in solutions 1 and 4 together is 60 ml, then what is the total volume of water in solution A?

A) 460 ml

B) 420 ml

C) 430 ml

D) 420 ml

E) 427 ml

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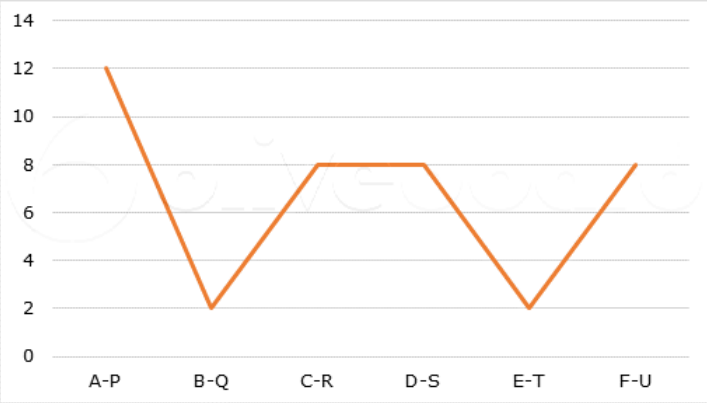
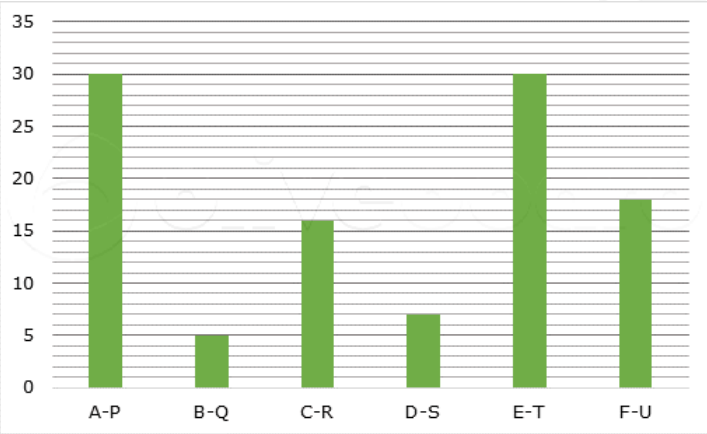
Directions [Set of 5 questions]: The data given below is about 10 employees: employees A, B, C, D, E and F are working in

same company X and employees P, Q, R, S, T and U are working in same company Y.

Persons A and P lives together, B and Q lives together, C and R lives together, D and S lives together, E and T lives together and F and U lives together respectively in same room.

Line graph given below shows the difference between distances (km) travelled by them from their room to their office and bar graph given below shows the difference between time taken (minutes) to go from their room to their office. All of the room partners left their room for office at the same time respectively.





Q12. Ratio of distances between the rooms of employees A and Q from their respective offices is 12: 7 and speed of employee A is 32 km/h which is double of the speed of employee Q. Employees A and B travel more than from their respective room partners to reach their offices and employees P and Q takes more time to reach their offices than their room partners, then what is the difference between the speed of employee B and employee P if speed of employees B is 18 km/h?

A) 10 km/h

B) 6 km/h

C) 0 km/h

D) 12 km/h

E) None of these

==========

Q13. Employee R travels more distance than his room partner to reach his office Y and if speed of employee C is 24 km/h which 4% less than the speed of employee R. If employee C takes less time to reach his office than his room partner, then what is the difference between the time taken by them to reach their office when they switch their speed with each other?

A) 17.6 minutes

B) 23.2 minutes

C) 28.4 minutes

D) 0 minutes

E) None of these

==========

Q14. Person A and C take more time than their room partners while person A and R travels more distance than their room partners to reach their office. Speed of person A and P is same while the speed of person C is 10 km/h less than the speed of his room partner. Distance between company X and rooms of A and C is 60 km and 32 km respectively. If another person M travels a distance equal to the distance travelled by A to reach his office from room with speed equal to the speed of P and person N travels a distance equal to the distance travelled by C to reach his office from room with speed equal to the speeds of R, then find the ratio

of time taken by M and N to cover their journey.

A) 25: 16

B) 16: 9

C) 75: 32

D) 75: 49

E) None of these

==========

Q15. Distance of office of S from his room is 68% of the distance of office of D from his room and person D takes more time than S to reach office from room. Total time taken by S to reach office is what per cent of total time taken by D to reach office if speed of S is 25% less than the speed of person D? Assume person D take more time to reach office than S.

A) 90(2/3)%

B) 75(1/3)%

C) 80(1/6)%

D) 60(2/3)%

E) None of these

==========

Q16. Speed of persons E, F, T and U is 24 km/h, 48 km/h, 16km/h and 40 km/h respectively. Persons E and F reach their office earlier than their respective room partners and also, they travel less distance to reach their office than their room partners. What is the difference between the sum of distance of home of employees E and T from their respective offices and the sum of distance of home of employees F and U from their respective offices?

A) 24 km

B) 16 km

C) 20 km

D) 12 km

E) 18 km

==========

Directions : Read the given information in the paragraph carefully and answer the following questions:

There are two Cab services in Bangalore: Ola and Uber and there are two types of cabs of each cab services: Mini and Micro.

Fare of Ola is calculated as the sum of Base Fare, extra charges and taxes while the fare of Uber is calculated as the sum of Base fare and Taxes.

Below given formulas are for calculating the fare for Ola and Uber of both types (Mini and Micro):

Ola:

Fare of Ola vehicles = Base Fare + 5% GST on Base Fare + Extra charges + 20% GST on extra charges

Base Fare for Ola Mini = Rs.5 * Total distance travelled (km) + Rs.20 * Total time taken in (hours)

Base Fare for Ola Micro = Rs.10 * Total distance travelled (km) + Rs.30 * Total time taken in (hours)

Extra charges = 25% of Base Fare

Uber:

Fare of Uber vehicles = Base Fare + 5% GST on Base Fare

Base Fare for Uber Mini = Rs.10 * Total distance travelled (km) + Rs.20 * Total time taken in (hours)

Base Fare for Uber Micro = Rs.15 * Total distance travelled (km) + Rs.20 * Total time taken in (hours)

Five persons P, Q, R, S and T of a company uses any one of these cabs for travelling from their home to Office and distances of their home from office is different. Following information is also known:

Person P covers the distance between home and office on a vehicle that travels with average speed of 20 km/hr and takes total 1.5 hours. Ratio of time taken by person P to that by person Q to reach office from home is 5: 4 while the speed of vehicle in which person Q is travelling is 5 km/hr less than that of vehicle on which person P travels. Ratio of distance between home and office for persons Q to that for person R is 3: 4 and time taken by R to reach office from home is 1 hour. Distance between home and office of person S is 21 km more than the average of distance between home and office of persons P, Q and R while the speed of person S is 15 km/hr which is 5 km/hr less than the speed of person T. Time taken by person T to reach office from home is 3 hours.

Q17. What is the difference between Fare amount if person P goes to office from home by Ola Mini and Fare amount when he returns from office to home by Uber Micro?

A) Rs.243

B) Rs.261

C) Rs.282

D) Rs.295

E) None of these

==========

Q18. A person U starts from Delhi at 8:00 AM and reaches Agra at 6:00 PM on the same day, From Delhi to point A he books Ola Micro that runs with speed 25 km/hr and from point A to Agra he books Uber Mini that runs speed 20 km/hr. Ratio of distance between Delhi to point A and distance between A to Agra is 5: 4 respectively, then what is the total amount of fare paid by person U?

A) Rs.3650

B) Rs.2950

C) Rs.4250

D) Rs.3045

E) None of these

==========

Q19. If person T books a private cab while returning from office to home and charges of private cab is mentioned below, then how much less amount he pays to private than the amount that he pays when he goes to office from home by Uber Mini?* Fare for private cab = Base Fare + Taxes* Base Fare for private cab = 8 * Total distance (km), and Taxes = 25% of Base Fare.

A) Rs.72

B) Rs.81

C) Rs.93

D) Rs.104

E) None of these

==========

Directions : Study the data carefully and answer the following questions.

In a company three kind of coffee such as café Mocha, Americano and café Cubano like by the employees. Total number of employees working in the company is 800 and 42.5% employees does not like coffee.

The number of employees who like café mocha is 10 less than the number of employees who like café Cubano and number of employees who like all three kind of coffee is 5% of total employees. The number of employees who like café mocha and americano but not café Cubano is half of the

number of employees who like all three kind of coffee and number of employees who like café mocha and café Cubano but not americano is 10 less than the number of employees who like only americano. The number of employees who like americano and café Cubano but not café mocha is 10 more than the number of employees who like café mocha and americano but not café Cubano. Number of employees who like only café Mocha is 10 more than the twice of employees who like only americano.

Q20. The number of employees who like only Americano is what percentage of the number of employees who like Café mocha and café Cubano but not americano?

A) 120%

B) 110%

C) 125%

D) 100%

E) None of these

==========

Q21. What is the difference between the number of employees who like Americano and café mocha?

A) 50

B) 60

C) 70

D) 80

E) 90

==========

Q22. What is the number of employees who like exactly two kind of coffee?

A) 80

B) 90

C) 100

D) 110

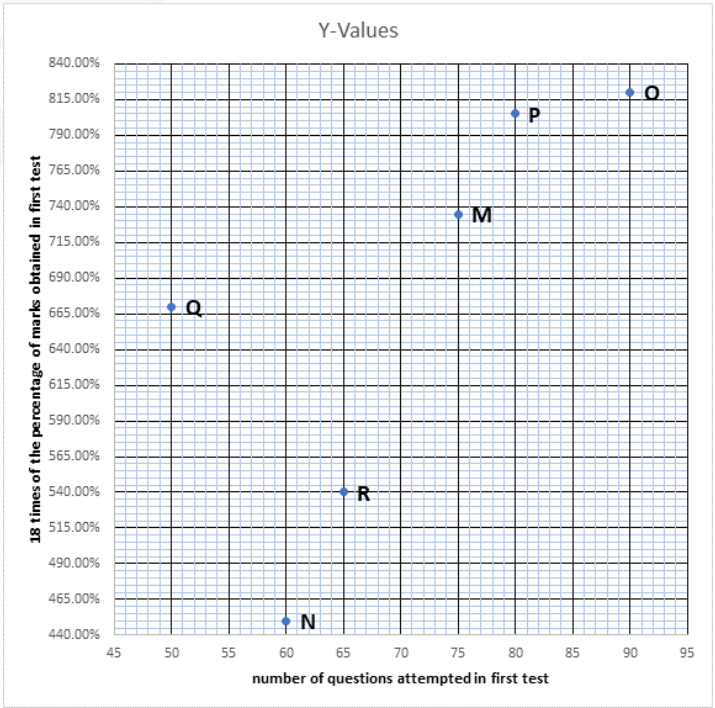
E) 120

==========

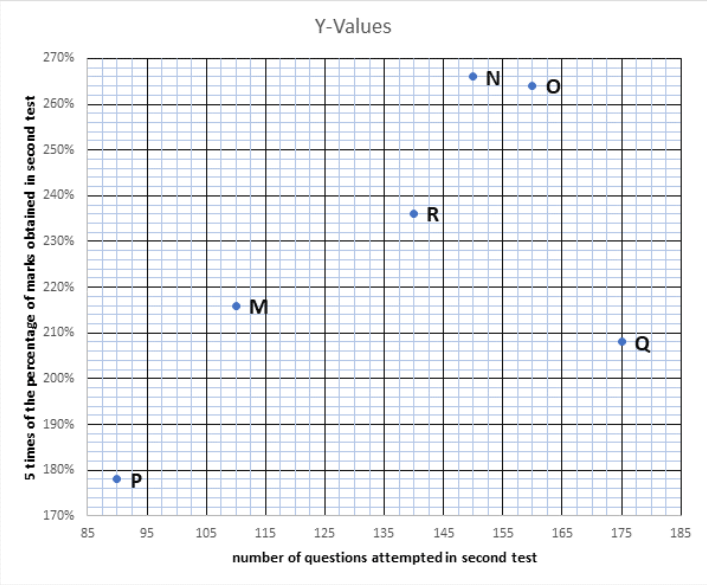
Directions: Study the data carefully and answer the following questions:

Six students M, N, O, P, Q and R give two tests. In first test, total number of questions are 100 and in second test, total number of questions are 200. There are three sections A, B and C in first test and two sections X and Y in second test. Section A, B and C consist of 35, 15 and 50 questions respectively. Section X and Y consist of 150 and 50 questions respectively.

Below graph shows the number of questions attempted by six students M, N, O, P, Q and R in first test and 18 times of the percentage of marks obtained by them in first test.



Below graph shows the number of questions attempted by six students M, N, O, P, Q and R in second test and five times of percentage of marks obtained by them in second test.



Below table shows the number of questions attempted by M, N, O, P, Q and R in section A, section B and section X.

	First test	Second test	
	Section a	Section b	Section x
M	28	11	65
N	22	6	110
O	31	12	118
P	28	10	60
Q	21	7	140
R	25	8	110

Note- There is 4, 8 and 2 marks for each correct answer and 1, 2 and 0.5 negative marking for every wrong answer in section A, B and C respectively in first test.

There is 4 and 8 marks for each correct answer in section X and Y respectively in second test. In section X, if there are upto 4 wrong answers then -1 mark for each wrong answer, if there are more than 4 and less than and equal to 12 wrong answers then -2 marks for each wrong answer and there are more than 12 wrong answers then -4 marks for each wrong answer. In section Y, if there are upto 2 wrong answers then -2 marks for each wrong answer, if there are more than 2 and less than equal to 6 wrong answers then -4 marks for each wrong answer and there are more than 6 wrong answers then-8 marks for each wrong answer.

For example

In section X if student attempted 10 wrong answers, the negative marks is calculated as follows

4 * (- 1) + 6 * (- 2)

In section Y if student attempted 10 wrong answers, the negative marks is calculated as follows

2 * (- 2) + 4 * (- 4) + 4 * (- 8)

Marks percentage in first test = (total marks obtained in section A, B and C) / 360 * 100

Marks percentage in second test = (total marks obtained in section X and Y) / 1000 * 100

Q23. What is ratio of total marks obtained by N to total marks obtained by R in both tests?

A) 301: 299

B) 311: 290

C) 311: 299

D) 301: 290

E) None of these

==========

Q24. What are the average marks obtained by O, P and Q in section A and C together if number of wrong questions attempted in section A and C by O is 18 and 8, by P is 16 and 6 and by Q is 4 and 8 respectively?

A) 96

B) 97

C) 98

D) 99

E) None of these

==========

Q25. Marks obtained by N in section X in second test is what percentage more or less than marks obtained by M in same section in second test if M and N attempted 5 and 10 wrong questions in section Y in second test?

A) 162.50%

B) 164.25%

C) 166.66%

D) 168.75%

E) None of these

==========

Q26. Which of the following sequence is correct for total marks obtained by all six students in section A and C together in first test if M, N, O, P, Q and R attempted 6, 3, 4, 2, 1 and 4 wrong questions respectively in section B in first test?

A) O>P>M>Q>R>N

B) M>O>P>Q>R>N

C) P>O>M>Q>R>N

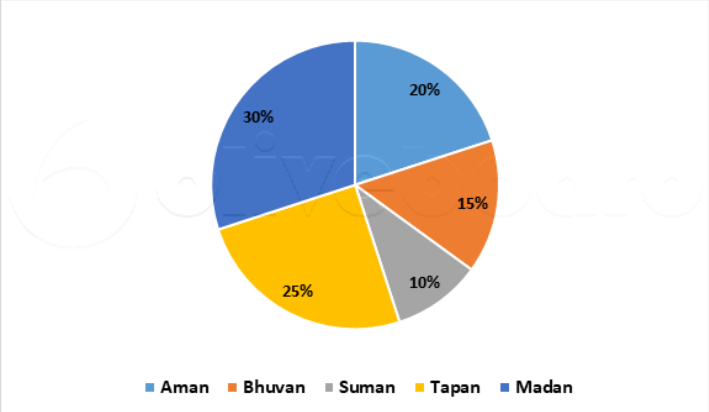
D) O>M>P>Q>R>N

E) M>Q>P>O>R>N

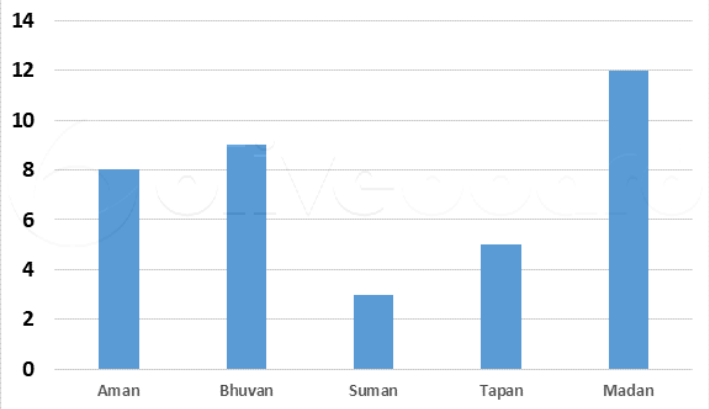
==========

Directions : Study the following information carefully and answer the questions given below:

The following pie chart represents the percentage-wise distribution of part of a work completed by five boys.



The following bar graph represents the time taken by them to complete their respective part of the work.



Aman and Ankita together can complete the work in 200/13 days, with the help of Binita, they can complete the work in 100/9 days. Ankita and Sushma together can complete the work in 50/3 days. Tapan and Anjana together can complete the work in 12 days. Kamini and Madan together can complete the work in 15 days.

Q27. Aman started the work and Binita and Anjana joined him every third day. In this way they worked for 9 days and left. Find the time taken by Bhuvan to complete the remaining part of the work.

A) 32 days

B) 36 days

C) 44 days

D) 40 days

E) None of these

==========

Q28. Time taken by Suman and Kamini to complete the work together is approximately what percent of the time taken by Tapan, Ankita and Sushma to complete the work together.

A) 139%

B) 133%

C) 123%

D) 143%

E) 147%

==========

Q29. Madan and Bhuvan started the work and left after 10 days. Ankita and Suman started the remaining part of the work but Ankita left 1 day before the completion of the work and Suman worked till the completion of the work. Find the number of days for which Ankita worked.

A) 159/17 days

B) 163/21 days

C) 165/22 days

D) 164/19 days

E) None of these

==========

Directions : Read the data given below carefully and answer the questions:

A bus runs on five different days from Monday to Friday and it has certain number of passenger seats. Total seats in the bus is 45 out of which ratio of seats reserved for male and female is 5: 4 respectively. 20% of male seats and 25% of female seats are reserved for emergency and can't be booked by any means.

Note: Male passengers can sit only in the seats booked for male passengers and vice versa.

· Fare for one adult male and one adult female passenger is Rs.120 and Rs.100 respectively.

· Fare of one male Kid and female kid is 75% of fare of one male adult and female adult respectively.

· To calculate the maximum fare the emergency seats are also considered.

Average number of male and female passengers in bus on Monday is 15 while male passengers in the bus on Tuesday is 2 more than the male passengers in the bus on Monday. Total number of female passengers in bus on Tuesday and Wednesday is same which is same as the total number of male passengers in the bus on Friday. Total number of male passengers in bus on Thursday is 2 more than the total number of male passengers in the bus on Friday while total number of female passengers in the bus on Thursday is 4 less than male passengers in the bus on that day. Total number of passengers (male + female) in the bus on Thursday is same as the number of male passengers in the bus on Tuesday. Total number of female passengers in the bus on Friday is 15 while the average number of female passengers in the bus on all the five days is 11 and average number of male passengers in the bus on all the five days is 14.

Days	Average of male kid and female kid passengers	Percent of female passengers that are kid
Monday	3	----

Tuesday	----	30%
Wednesday	2	----
Thursday	5	75%
Friday	----	----

Q30. Total amount of fare collected form the bus on Monday is Rs.3195, then what is the ratio of male kids to female kids in the bus on Monday?

A) 6: 5

B) 5: 4

C) 3: 4

D) 1: 1

E) 2: 3

==========

Q31. If out of total passengers in the bus on Tuesday, approximately 26.67% are kids, then total fare collected from the bus on Tuesday is what percent of maximum fare amount that can be collected from the bus?

A) 67.5%

B) 72.5%

C) 63.5%

D) 75%

E) 48.5%

==========

Q32. If total fare collected from the bus on Wednesday is 41.8% of maximum fare that can be collected from the bus, then what is the difference between male kid passengers and female kid passengers in the bus on Wednesday?

A) 0

B) 3

C) 5

D) 4

E) can't be determined

==========

Q33. If average number of female kid passengers in the bus on Wednesday and Thursday is 3, then what is the average of total fare collected from the bus on Wednesday and Thursday together?

A) Rs.2150

B) Rs.2025

C) Rs.3275

D) Rs.2125

E) Rs.1850

==========

Q34. Out of total passengers in the bus on Friday, 40% are kids and ratio of male kids to female kids is 1: 4. If 'x' more passengers boarded to the bus on that day out of which one is kid and remaining are adults. Total fare collected from the bus on Friday is increased by Rs.570 from the original fare, then what is the value of 'x'?

A) 5

B) 4

C) 1

D) 3

E) 2

==========

Directions : Study the following information carefully and answer the related questions.

There are total 8000 people in a locality who live in 5 different buildings A(10%), B(25%), C(15%), D(35%) and remaining in E. All of them use different brand clothes among four types i.e. Code, Nike, Adidas and Levis. Each person uses only one brand clothes. Each person like only one color among four different colors i.e., red, grey, white and blue.

Following equation is used for calculating the number of persons who like two given colors among people live in all given buildings:

For red: R = 2X - 2.5Y

For grey: G = 2.5X - 3Y

Where, X and Y represents the number of males and females respectively in each building and value of X and Y will be different for each building.

Code: Number of users in building B and building C are in the ratio 3: 2 respectively. Total 1780 users are there out of which 250 from building E. Users from building D are twice of users from building C and users in building A are 20 less than number of people who like red color in building D.

Nike: Users in building B are 6% of total population of given locality and are 200 more than the number of users in building E. Total number of users are 30 less than total number of users of Adidas. Number of users in A and C are in the ratio 5: 4 respectively.

Adidas: Number of users from building C and D are in the ratio 9:10 respectively. Number of users in building B are 50 more than the number of people who like grey color from same building. Users in building A are 80 less than the number of females in same building. 270 users are in building E.

Levis: Total 2270 users are there out of which 300 live in building C. Users in building D are 4 times the number of people in building C who like white color. Users in building B are 45 more than the number of people in building E who like red color.

Following data is also given:

Number of people in building A who like white and blue color are in the ratio 3: 1 respectively and 150 people in building A like white color which is 100 less than the number of people in building C who like same color. Number of people who like white and blue color in building E are 300 and in building B are 1000. Total 4500 people are there in locality who like white and blue color and 550 people in building C like blue color.

Q35. If 350 people from building A like grey color and the ratio of people who like red and grey color in building B are in the ratio 2: 3 respectively, then what will be the difference between total number of Adidas users from building A and B?

A) 410

B) 420

C) 430

D) 440

E) 450

==========

Q36. If there are 1200 females in building D, then what will be the respective ratio of total number of Code users in building A and D together to the total number of Levis users in building C and E together?

A) 19: 17

B) 22: 19

C) 28: 23

D) 33: 29

E) 39: 35

==========

Q37. If the ratio of number of Levis users in building A and B are in the ratio 5: 14 respectively, then total number of females in

building E are approximately what percent of total population of given locality?

A) 4%

B) 6%

C) 8%

D) 10%

E) 12%

==========

Q38. If males in building C are 200 more than females in same building and number of people who like white color in building B are 200 less than the number of people who like blue color in same building, then number of people in building C who like grey color are approximately what percent of number of people in building B who like white color?

A) 62.5%

B) 54.5%

C) 66.5%

D) 58.5%

E) 60.5%

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Q39. In building E, 66%, 45% and 52% Code, Nike and Levis users are females and total number of male users of Code, Nike and Levis in building C are 24 more than total number of male users of same brands in building E. If there are total 800 users of Code, Nike and Levis in building C, then what will be the difference between number of male users of same brands in building E and number of female users of same brands in building C?

A) 84

B) 88

C) 90

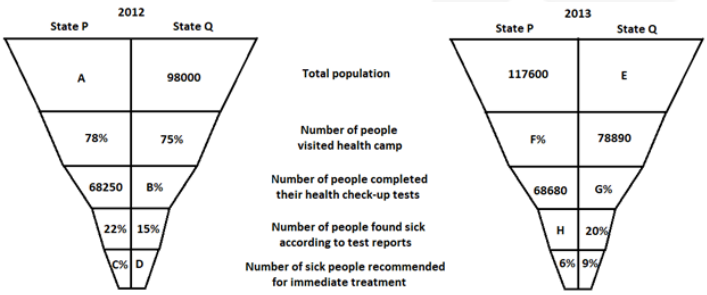
D) 86

E) 92

==========

Directions : Study the following information carefully and answer the related questions.

The following charts represent the database of a health camp held in two states during the two different years.



(Note: Values given in percentage for state P for a particular year are out total population of state P in that year and values given in percentage for state Q for a particular year are out of total population of state Q in that year.)

Q40. if the number of sick people recommended for immediate treatment from state P in 2013 is 1344 less than the previous year, then what is the value of 'C'?

A) 6

B) 7

C) 8

D) 9

E) 10

==========

Q41. If A - H - E = 61132 - 1200F and B + G = 2(F - 15), then how many people visited health camp in state P is 2012?

A) 81900

B) 78750

C) 77700

D) 79800

E) 80850

==========

Q42. In 2012 the ratio of number of people found sick according to test report in state Q and number of people found sick according to test report but did not recommend for immediate treatment from state P is 1: 1. If population of state Q is increased by 15% in 2013 than previous year and number of people who visited health camp but did not complete their health check-up test in state Q in 2013 are 74676 less than the number of people visited health camp from state P in same year, then what is the average of number of people from state P who did not visit camp in 2012 and 2013 together?

A) 22350

B) 23850

C) 24750

D) 25650

E) 26250

==========

Q43. Average of number of people completed their health check-ups tests from state Q in 2012 and 2013 taken together is 63063. How many people from state Q visited health camp but did not complete their health check-up test in 2013?

A) 15682

B) 10226

C) 13524

D) 11426

E) 14388

==========

Q44. If 20237 people from state Q in 2012 and 2013 taken together who found sick did not recommend for immediate treatment, then what is the difference between number of sick people recommended for immediate treatment from state Q in 2012 and number of people who were not sick according to test report in state P in 2013?

A) 40652

B) 39862

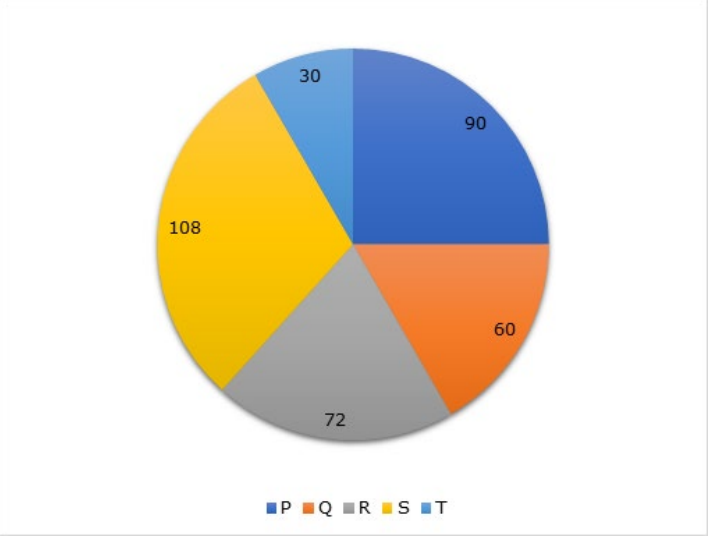
C) 36572

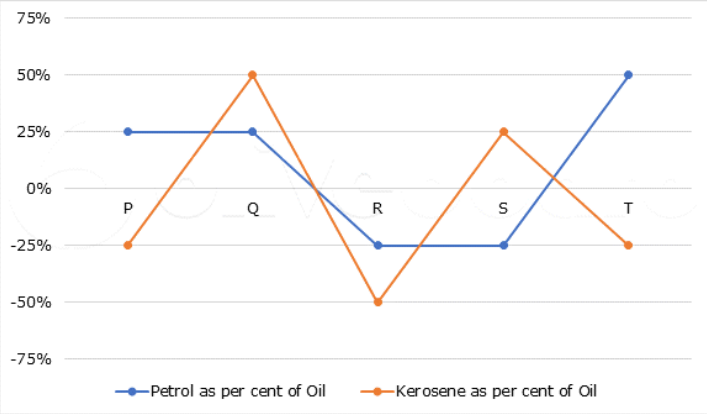
D) 38142

E) 41882

==========

Directions : There are five mixtures P, Q, R, S and T of three liquids Oil, Petrol and Kerosene. Pie chart given below shows the distribution (degree) of total amount of Oil in those five mixtures and line graph given below shows the per cent more/less amount of Petrol and Kerosene with respect to the amount of Oil in those five mixtures.





Q45. When mixture P and Q are mixed in the ratio 4: 5 to form a final mixture, then different between amount of Oil and Petrol in the final mixture becomes 12 litres, then what is the total amount of newly formed mixture?

A) 172 litres

B) 151 litres

C) 162 litres

D) 144 litres

E) None of these

==========

Q46. In what ratio mixtures P and R must be mixed to form a final mixture so that in the final mixture, amount of Oil and Petrol is same while the amount of Kerosene is 15 litres less than that of Petrol and total amount of final mixture is 105 litres?

A) 5: 2

B) 7: 3

C) 6: 5

D) 8: 5

E) 4: 3

==========

Q47. When 'X' litres of mixture S is mixed with '156' litres of mixture T to form mixture A, then ratio of Oil, Petrol and Kerosene in the mixture A becomes 76: 75: 83, then what will be the part of Oil in total amount of mixture B if '156' litres of mixture S is mixed with 'X' litres of mixture T to from mixture B?

A) (45/119)

B) (38/117)

C) (37/117)

D) (23/121)

E) None of these

==========

Directions : A manufacturing company of bottles manufactures certain number of bottles and out of which some are sold, and some remains unsold. Out of total sold bottles, some are sold at 50% profit and remaining are sold at 20% profit.

Table given below shows the percent of unsold bottles out of total manufactured bottles, Percent of bottles sold at 50% profit out of total bottles sold.

Years	Percent of unsold bottles out of total manufactured bottles	Percent of bottles sold at 50% profit out of total sold bottles
2011	20%	75%
2012	16(2/3)%	60%
2013	12.5%	50%
2014	10%	40%

Q48. What will be the total number of unsold bottles manufactured by the manufacturer in the years 2011 and 2014 together?I: Ratio of total bottles sold at 50% profit in 2011 to the total bottles sold at 20% profit in 2014 is 4: 3.II: Total unsold bottles in 2011 is 70 more than the total unsold bottles in 2014.III: If total unsold bottles in 2011 are assumed

to be sold and this increased the number of bottles sold at 50% in 2011 by 16(2/3)% and number of bottles sold at 20% in 2011 becomes same as the number of bottles sold at 50% in 2014.

A) I and II together or II and III together are sufficient.

B) III alone is sufficient.

C) I and II together or I and III together are sufficient.

D) Any two of them together are sufficient.

E) I and III together or II and III together are sufficient.

==========

Q49. Quantity I: What will be the difference between total items sold at 50% profit and 20% profit by the manufacturing company in the year 2012 if items sold at 20% profit are 80 more than the total unsold items.Quantity II: What will be the difference between sold and unsold items manufactured in the year 2013 if unsold items in 2013 is 100.

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 relation can't be determined.

==========

Q50. What is the total number of items sold by the manufacturer in the years 2011 and 2013 together if ratio of unsold items in 2011 to that in 2013 is 6: 5?Quantity I: Total number of sold items at 20% profit in 2013 is 115 more than that in 2011.Quantity II: Total number of unsold items in the years 2011 and 2013 together is 110.Quantity III: Total items sold at 50% in 2011 is 15 more than total items sold at 20% in 2013.

A) Quantity I > Quantity II > Quantity III

B) Quantity I = Quantity II < Quantity III

C) Quantity I = Quantity II = Quantity III

D) Quantity I < Quantity II < Quantity III

E) Quantity I < Quantity II = Quantity III

==========

Directions : Read the data given below carefully and answer the questions:

Shrinkage can be defined as the time for which people are paid but not available to handle calls or perform their task.

Shrinkage percent = (1 - Total staffed hours/Total scheduled hours)

Total Staffed hours = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

Total scheduled hours = Total Agents * Total working hours in a day

Average Handle time (AHT) = Average Talk Time (ATT) + Average Call Work (ACW)

Average-Talk-Time **(ATT)** is the average amount of time agents talk to customers.

After-Call-Work **(ACW)** is the average amount of time an agent takes to wrap-up a call.

Available time is defined as the amount of time an agent is ready to take a call.

There are total five BPO centres A, B, C, D and E and table given below shows the Total Agents, Total working hours in a day, Average Talk Time and Average Call Work in those BPO centres:

BPO	Total Agents	Working hour	ATT (minutes)	ACW (minutes)
A	75	8	4	1.5
B	60	9	5	2
C	80	7.5	3	1
D	120	6	6	2
E	90	8.5	4.5	1.5

Some other information is also known:

Available time for BPO A is **(P)** minutes while AUX time of the same BPO is 30 minutes. Total answered calls by BPO B is **(Q)** which is 5 less than total answered calls by BPO C. Average of total answered calls by BPO D and E is 70 while answered calls by BPO E is 40 more than that by BPO D. Ratio of Available time to AUX time of the BPO E is 5: 1 while the same ratio of BPO C is 11: 6. Available time and AUX time of BPO D is 175 minutes and 91 minutes respectively.

Q51. If average of total answered calls by BPOs A, D and E together is 73.33 approximately and shrinkage percent of BPO A is 10%, then what is the value of 'P'?

A) 90

B) 65

C) 75

D) 80

E) 70

==========

Q52. Available time for BPO B is 22 minutes more than the AUX time for that BPO and ratio of numerical value of available time to numerical value of total answered calls by that BPO is 8: 13. If value of Q is 65, then what is the approximate shrinkage percent of BPO B?

A) 7.5%

B) 8%

C) 5%

D) 12.5%

E) 10%

==========

Q53. If difference between available and AUX time for BPO C is 50 minutes and its shrinkage percent is 35%, then what will be the shrinkage percent of BPO B if available and AUX time for BPO B is 90 minutes and 46 minutes respectively?

A) 15%

B) 10%

C) 20%

D) 25%

E) 5%

==========

Q54. If numerical value of shrinkage percent of BPO A and C is 10 and 17.5 respectively more than that of BPO D and total answered calls by BPO A is 70 and AUX time of BPO C is 60 minutes, then what is the ratio of 'P' to 'Q'?

A) 16: 15

B) 14: 11

C) 13: 12

D) 16: 13

E) 18: 13

==========

Q55. If shrinkage percent of BPO E is 20%, then numerical value of AUX time for that BPO is approximately what percent of number of total answered calls by the BPO?

A) 16.67%

B) 13.33%

C) 23.33%

D) 8.88%

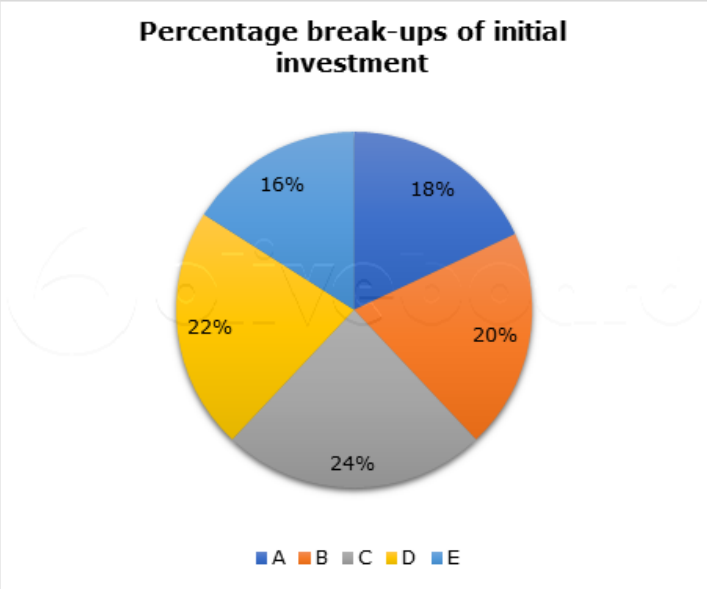
E) 26.67%

==========

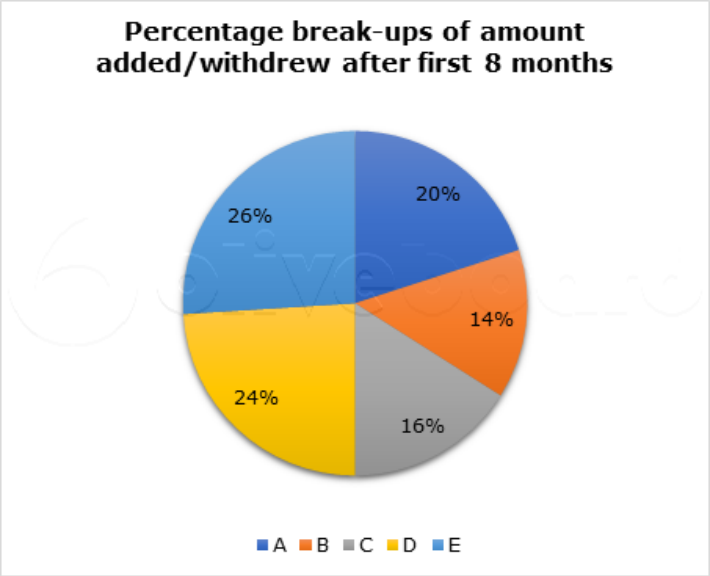
Directions : Study the following information carefully and answer the related questions.

Following first pie-chart represents the percentage distribution of amount invested by five friends A, B, C, D and E respectively and second pie-chart represents percentage distribution of amount added or withdrew by all five friends after first 8 months.

Total initial investment = Rs.50000



Sum of positive values of amount added/withdrew by all given five friends = Rs.15000



Q56. If profit earned by C and E after first '8 + n' months partnership are in the ratio 768: 677 respectively and the investment of E becomes more than investment of C after first '8 + n' months, then what is the value of 'n'?

A) 4

B) 8

C) 6

D) 10

E) Cannot be determined.

==========

Q57. If only B and D added amount after first 8 months then after next four months B and D left and A, C and E added Rs.2000, then what is the ratio of profit earned by A, B, C, D and E after 18 months partnership?

A) 340: 195: 240: 244: 214

B) 240: 214: 340: 244: 195

C) 340: 214: 240: 244: 195

D) 240: 244: 340: 195: 244

E) 340: 214: 240: 195: 244

==========

Q58. If only D and E added amount after first 8 months then after first '8 + ___' months, D invested Rs.4000 more and E invested Rs.___ more. Only after next ____ months both D and E withdrew Rs.8000 and the profit earned by them after next 2 months partnership is in the ratio ___ respectively.Which of the following option is suitable to fill the blanks in same order?

A) 6, 2000, 8, 201: 169

B) 4, 4000, 10, 213: 277

C) 12, 2000, 2, 109: 129

D) 8, 4000, 6, 211: 169

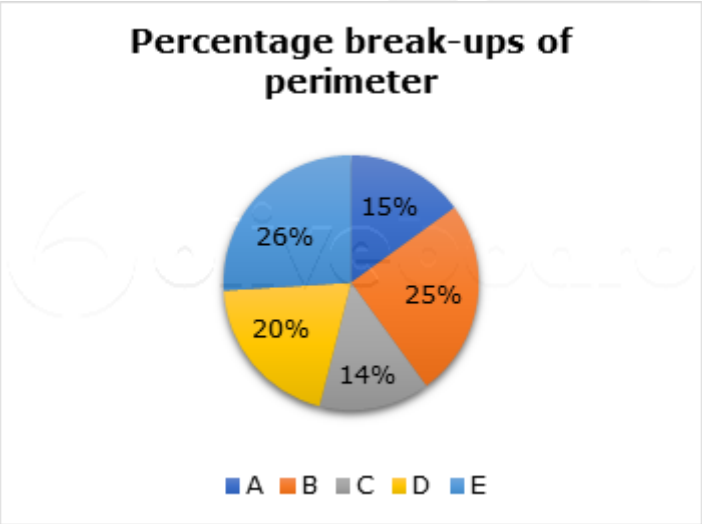
E) None of these

==========

Directions : Study the following information carefully and answer the related questions.

Following pie-chart represents the percentage break-ups of perimeter of five rectangles and table represents the respective ratio of their length and breadth.

Total perimeter = 1200 cm



Rectangle	Length: Breadth
A	5: 4
B	3: 2
C	4: 3
D	7: 5
E	5: 1

Q59. What is the average of length of all given rectangles?

A) 71.6 cm

B) 73.6 cm

C) 75.6 cm

D) 77.6 cm

E) 79.6 cm

==========

Q60. What is the respective ratio of length of rectangles C and E together to the breadth of rectangles B and A together?

A) 23: 15

B) 18: 11

C) 38: 21

D) 56: 33

E) None of these

==========

Q61. What is the difference between the perimeter of rectangle B to the sum of breadths of all given rectangles?

A) 72 cm

B) 78 cm

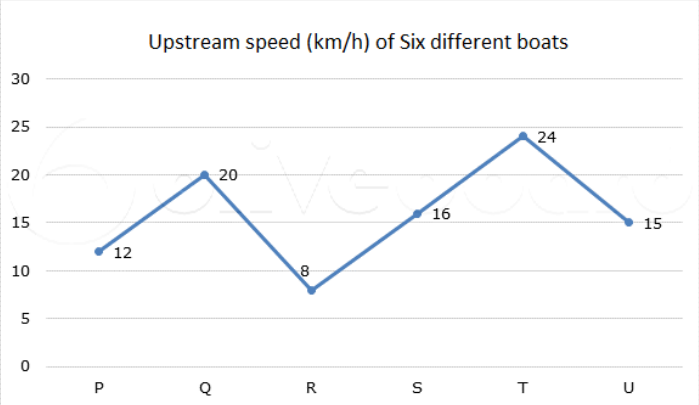
C) 64 cm

D) 88 cm

E) 84 cm

==========

Directions : The data given below indicates the speeds of 6 boats and corresponding speeds of stream (some of the data is deliberately left blank).



Boats	Speed of stream (in km/h)
P	3
Q	----
R	2
S	----
T	6
U	----

Q62. If boat Q travels 2 km upstream in the same time as it travels 3 km downstream, than find the speed of Stream?

A) 3 km/h

B) 4 km/h

C) 5 km/h

D) 6 km/h

E) None of these

==========

Q63. If speed of boat U in still water is 600% of the speed of stream, then find that the speed of boat U in downstream is how much times the speed of boat U in upstream?

A) 0.4

B) 1.4

C) 4

D) 1/4

E) None of these

==========

Q64. Find the difference between time taken by boat P and boat R to cover a distance of 252 km in downstream.

A) 6 h

B) 7 h

C) 8 h

D) 7.7 h

E) None of these

==========

Q65. Boat T goes from point A to point B and comes back to the original point A in 10 hours. What is distance between the points A and B?

A) 126 km

B) 138 km

C) 108 km

D) 144 km

E) None of these

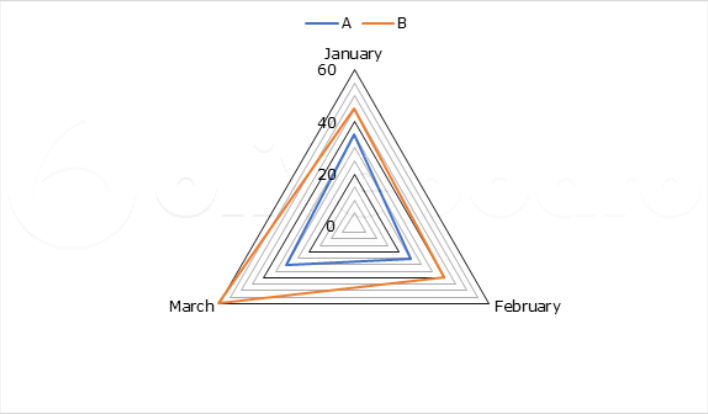
==========

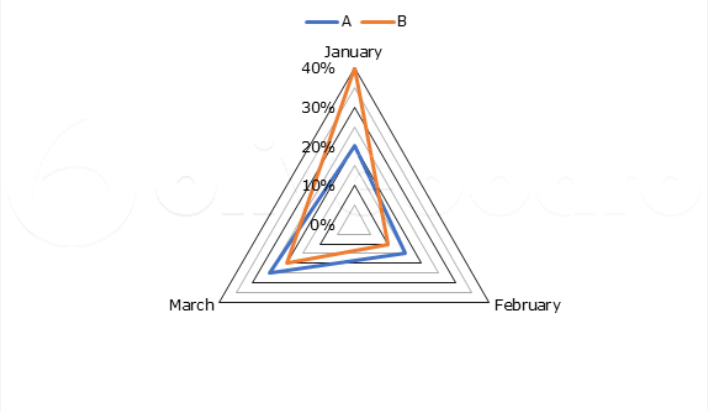
Directions : First radar graph given below shows the total income (in thousand) of two

persons A and B in three different months January, February and March respectively.

Second radar graph shows the total savings as a per cent of income for A and B in those three different months.

Total expenditure = Expenses on Food + Expenses on Rent + Expenses on Shopping.





Q66. Total amount of savings of person A in all the three months together is P% of his total income and total amount savings of person B in all the three months together is Q% of his total income, then what is the ratio of 'P' to 'Q'?

A) 217: 248

B) 2312: 3457

C) 117: 448

D) 2117: 2448

E) None of these

==========

Q67. Amount spent on Food by person B in February and March together is Rs.35000 which is 80% of his total expenditure on Rent taking both the given months together, then what per cent of his total income in both the months together he spent on shopping?

A) 12.5%

B) 7.5%

C) 5.25%

D) 8.75%

E) None of these

==========

Directions : Study the data carefully and answer the following questions:

Mohit started two businesses. He started catering business with his brothers Sunil and Punit and another Garment business with his friends Rohan and Prakash.

In catering business, the initial investment by Mohit, Sunil and Punit in the ratio of 4: 4: 3. After 6 months, their cousin Shyamaly joined the business with 2.5 times Mohit's initial investment and at that time Mohit, Sunil and Punit again invested into the business in the ratio of 4: 3: 3. Further 6 more months, Mohit, Sunil, Punit and Shyamaly again invested into the business in the ratio of 6: 4: 5: 5. After 2 years from start of the business, Mohit and Punit withdraw 50% of mohit's initial investment and 80% of Punit's previous investment and Sunil invest 3.5 times of his initial investment and Shyamaly invest 1.6 times of her initial investment. Further 6 more months, Mohit, Sunil, Punit and Shyamaly again invested in the ratio of 2: 4: 1: 4.

In Garment business, Mohit, Rohan and Prakash initially invested in the ratio of 8: 7: 5 and after 6 months Megha also joined the business with half of the initial investment of Mohit. After 1 year start of the business,

Mohit, Rohan, Prakash and Megha invested in the ratio of 3: 2: 2: 3 and further 6 more months, Mohit, Prakash and Mega again invested in the ratio of 5: 3: 2. After 2.5 years start of the business, Mohit withdraw 20% of his previous investment, Rohan withdraw 25% of investment made by him after 1 year start of the business, Megha withdraw 25% of her initial investment and Prakash withdraw half of his investment made after 1 year start of the business.

They invested the whole amount for three years in both the businesses and the profit earned in the business is proportional to the investment and the period of investment.

Q68. What is the Mohit's share of profit from both the business if the total profit in catering business is Rs. 854000 and in garment business is Rs. 909000?
I. After 1 year, Prakash investment is 50% of Mohit's initial investment in garment business which is four times of Mohit's initial investment in catering business.
II. After 6 months, Sunil's investment is Rs. 6000 which is 3 times of Mohit's investment after 2.5 years in catering business.
III. After 1 year, Punit's investment in the catering business is equal to Prakash's initial investment in the garment business.
IV. Megha's initial investment in garment business is 33(1/3)% less than of her investment after 18 months and Prakash's initial investment is Rs. 7000 more than the initial investment of Punit.
V. Prakash initial investment is 33(1/3)% of Mohit's investment after 18 months. Rohan's initial investment in the garment business is Rs. 10000 more than the Sunil's initial investment in catering business.
Which of the above statement/statements is/are redundant to answer the question?

A) Either IV or V

B) Either I or IV

C) statement IV

D) statement IV and statement V

E) statement V

==========

Q69. In Garment business, initial investment of Megha is equal to the Rohan's investment after 1 years and Prakash's investment after 18 months is Rs. 18000 which is 50% more than Mohit's investment after 1 year. What is the weightage of capital invested by Megha and Rohan in the garment business? (If the weightage of capital investment means initial investment +/- money added or withdrawal and so on till the end of the business)

A) Rs. 48000

B) Rs. 50000

C) Rs. 40000

D) Rs. 52000

E) None of these

==========

Q70. In catering business, Sunil's investment after 6 months is 40% less than Shyamaly's initial investment which is 50% of Punit's investment after 1 year. If Sunil investment after 2.5 years is Rs. 4000 which is equal to his initial investment and Mohit gets 5% of total profit for managing the catering business which Rs. 254400 less than the share of Punit's profit, then what is the total profit at the end of three years?

A) Rs. 2114000

B) Rs. 2024000

C) Rs. 368600

D) Rs. 2284000

E) None of these

==========

Q71. Initial investment by Mohit in catering business is Rs. T which is equal to the Shyamaly's investment after 2.5 years from

the start of business and Punit's investment after 6 months, is Rs. (T + 2000). After 1 year, Sunil's investment is Rs. 4T and difference between Mohit's and Punit's initial investment is Rs. 1000. Find the ratio of profit of Mohit, Sunil, Punit and Shyamaly.

A) 158: 150: 97: 166

B) 150: 158: 97: 166

C) 158: 150: 197: 166

D) 158: 150: 97: 66

E) None of these

==========

Directions : In a power plant, there are 3 stages. A stage consists of some combination of units that produce power and have some maximum capacity. The efficiency of a unit(or a stage) is the percentage of maximum capacity it actually produces. This table shows the number of units of each type of maximum power capacity in a stage.

	Number of 200 MW units	Number of 250 MW units	Number of 500 MW units	Overall capacity
Stage I	3			1850
Stage II	5		2	
Stage III		2		2000
Overall	13			

The overall capacity of stage II is (60/137) part of the overall capacity of the power plant and the ratio of the total capacity of 500 MW units in all stages to the total capacity of 250 MW units in Stage I is 8:3.

The unit of Power is Megawatt(MW) and it is an instantaneous quantity. The amount of electricity produced = Power*Time

For example, if a unit has capacity 700 MW and it works at 60% efficiency for 3 hours, electricity produced = (60/100)*700*3 = 1260 MWh(Megawatt hour)

On a particular day, a number of units are operated for some time at a particular level and shut down after working through all levels. The following is the information about 4 different levels of efficiency that a unit works at and the time period for which it can work at that particular level before it has to be brought down one level or stopped completely. So, from the table, if a unit is working at level 4 for 2 hr, it will be brought down to level 3 and after working at level 3 for 4 hours it will be brought down to level 2 and so on or it may be stopped at any position.

	Efficiency Range	Working time
Level 1	40% - 50%	8
Level 2	55% - 65%	4
Level 3	60% - 80%	4
Level 4	80% - 90%	2

At every level, there are 3 modes: Minimum mode, Normal mode and Maximum mode. For example, if a unit is working at level 2 in max mode, its efficiency = 65% and if a unit is working at level 3 in normal mode, its efficiency = (60 + 80)/2 = 70%. If a unit is started in any mode, it will remain in the same mode throughout the levels.

Q72. What is the difference between the total number of 250 MW units and total number of 500 MW units in the power plant?

A) 5

B) 8

C) 3

D) 10

E) 2

==========

Q73. If in Stage I, all 200 MW units were started in level 3 in max mode, all 250 MW units were started in level 2 in normal mode and all 500 MW units were started in level 4 in max mode, what will be the electricity produced by stage I if the units are not stopped in between?

A) 14900 MWh

B) 12200 MWh

C) 12000 MWh

D) 12400 MWh

E) 16180 MWh

==========

Q74. If in Stage II, all 200 MW were started in level 4 in min mode, all 250 MW units were started in level 4 in normal mode but stopped after completing level 3 and all 500 MW units were started in level 2 in normal mode, the electricity produced will be what percentage of the electricity produced had all units in stage II be working at 100% efficiency continuously for 10 hours?

A) 48(1/3)%

B) 66(1/3)%

C) 58(1/3)%

D) 62(1/3)%

E) 72(2/3)%

==========

Q75. If, in stage III, all 500 MW units were shut down and all 200 MW units were started in level 3 in minimum mode and after completing level 2, some of them were shut down and all 250 MW units were started in level 3 in normal mode, the electricity produced was 10280 MWh, how many 200 MW units were shut down after level 2?

A) 1

B) 2

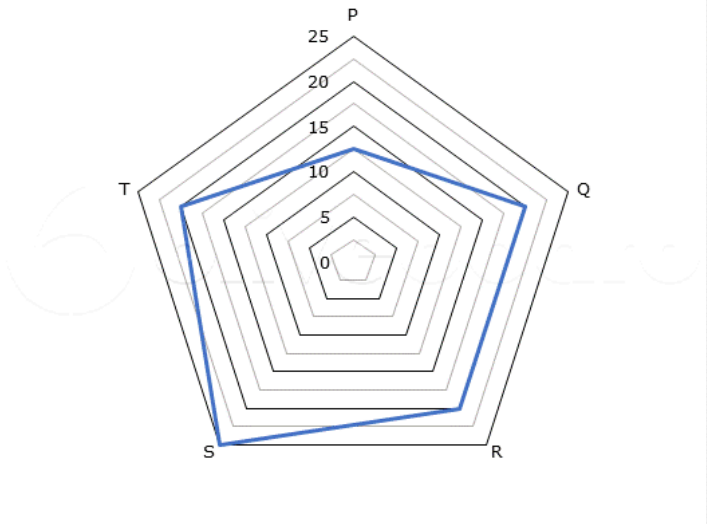
C) 3

D) 4

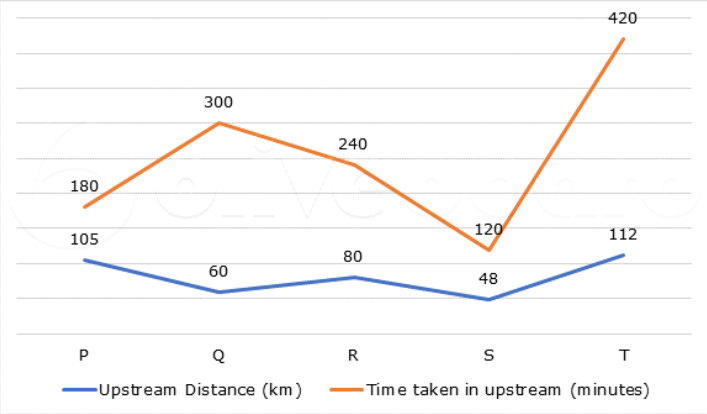
E) 5

==========

Directions : There are five boats P, Q, R, S and T and radar graph given below shows the speed of stream for those five boats as a per cent of their speed in still water.



Line graph given below shows the upstream distance travelled by those five boat and time taken by them to cover its upstream distances.



Q76. If boat P goes certain distance in upstream and comes back to the same point in total of 3.52 hours when travels with original speed. When it goes same distance in upstream and comes back to the same point with its changed speed in still water, it takes 43.2 minutes less, then by what per cent boat P changes its speed in still water and assume speed of stream remains same?

A) 15%

B) 30%

C) 20%

D) 25%

E) None of these

==========

Q77. Boats R and T start from two different points A and B respectively on a river and speed of stream for boat T also becomes 5 km/h and both the boats meet after travelling for 48 minutes towards each other. If both the boats start from point A and start travelling in upstream, then how far is the boat T from point B when boat R reaches there? Speed of the stream remains 5 km/h.

A) 11.25 km

B) 8.75 km

C) 12.5 km

D) 15 km

E) None of these

==========

Q78. Boat Q goes 'x' km in upstream and comes back to the original point in time 'a' while boat S goes 'y' km in upstream and comes back to the original point in time 'b'. Ratio of x: y is 3: 4 and value of 'a' is 1.8 more than the value of 'b', then what is the distance travelled by boat S in downstream in (a + b) hours?

A) 328 km

B) 192 km

C) 420 km

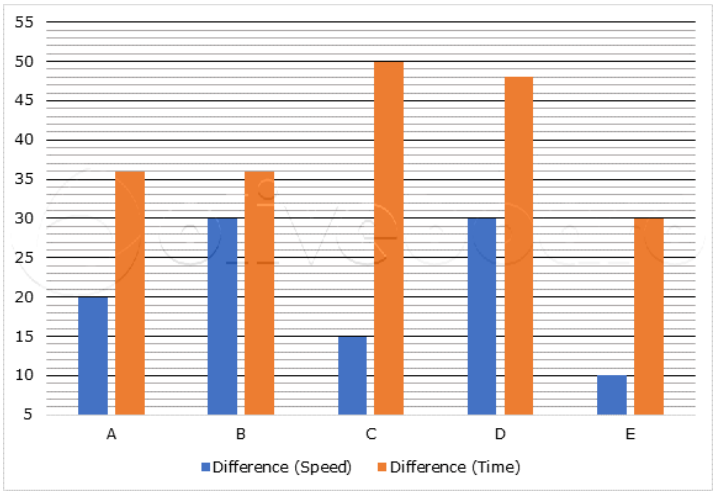
D) 280 km

E) None of these

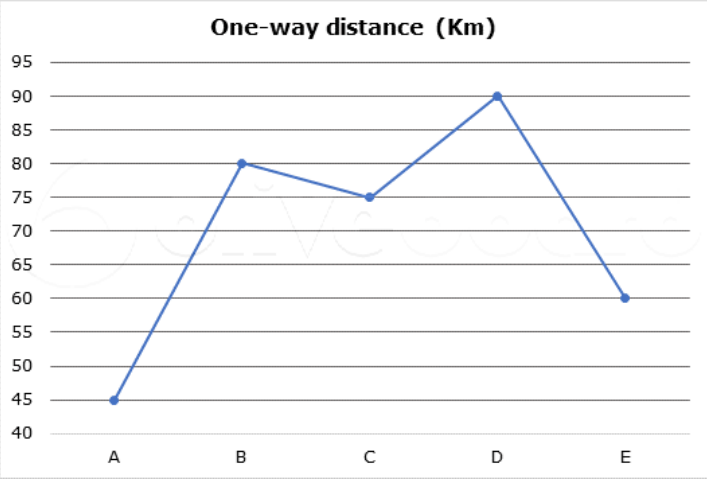
==========

Directions : There are five boats A, B, C, D and E that are travelling in different rivers. Upstream and downstream distance travelled by all the five boat are same.

Bar graph given below shows the difference between upstream and downstream speed (km/h) and difference between time taken (minutes) to go upstream and comes back to the same point by those five boats.



Line graph given below shows the one-way distance (km) travelled by those five boats.



Q79. Total time taken by boat B to go 'D - 20' km in upstream and come back 'D + 4' km in downstream is 1.6 hours. If upstream and downstream speeds of the boat B are decreased by 32% and 12.5% respectively, then what is the time taken by boat B to cover total distance of '2D - 16' km in still water with changed speed?

A) 2.4 hours

B) 2 hours

C) 1.6 hours

D) 1.8 hours

E) None of these

==========

Q80. Ratio of total time taken by boat C to go 'D' km upstream and come back 'D - 15' km in downstream to the total time taken to cover the same distance when the stream reverses its direction is 23: 22, then what is the total time by boat C in its journey when the stream is flowing in its original direction?

A) 4 hours 15 minutes

B) 2 hours 30 minutes

C) 3 hours 25 minutes

D) 3 hours 50 minutes

E) None of these

==========

Q81. In a different river, time taken by boat E to go 45 km upstream is 1.8 hours and there are two points P and Q on the same river and the river is flowing from point Q to P. Two boats D and E start simultaneously from points P and Q respectively in upstream and after travelling for 't' hours the distance between both the boats becomes 30 km before meeting, then after how much more time the distance between them again becomes 30 km if the distance between P and Q is 80 km?

A) 2.4 hours

B) 1.2 hours

C) 2 hours

D) 3 hours

E) None of these

==========

Q82. Total time taken by boat B to go 'X' km in upstream and comes back to 'X - 12' km in downstream is same as the total time taken by boat D to go 'X - 15' km in upstream and comes back to 'X' km in downstream and which is equal to 't', then total upstream distance travelled by boat C in 't - 0.3' hours is what per cent of value of 'X'?

A) 60%

B) 50%

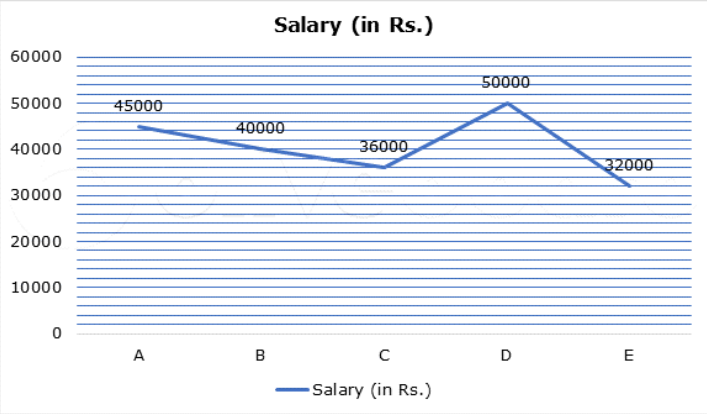
C) 80%

D) 72%

E) None of these

==========

Directions : The line graph given below gives the information about salary of five different persons.



The table given below gives the partial information about their expenditures on food, travelling, petrol and others. (some values are in percentage and some value are in Rupees)

	Food	Travelling	Petrol	Others
A	18%	-----	---	Rs. 8640
B	Rs. 10240	-------	16%	28%
C	------	24%	Rs. 10368	32%
D	-----	Rs. 7200	-------	22%
E	24%	--------	Rs. 3072	------

Each of them saves 20% of their salary

For the person A, the ratio of the expenditures on Travelling to that on Petrol was 16: 13

Person D spends 50% more on food compare to that on Petrol.

For the person E, the expenditures on Travelling is Rs. 1024 more than that on Others.

Q83. For the person A, the expenditures on Travelling was how much more than that on Petrol?

A) Rs. 2160

B) Rs. 4320

C) Rs. 2840

D) Rs. 1880

E) None of the above

==========

Q84. On food, what is the total expenditures of all the five persons together?

A) Rs. 41248

B) Rs. 39568

C) Rs. 36464

D) Rs. 38848

E) None of the above

==========

Q85. The expenditures of B and C together on Food is how much less than the expenditures of D and E together on Travelling?

A) Rs. 3248

B) Rs. 3360

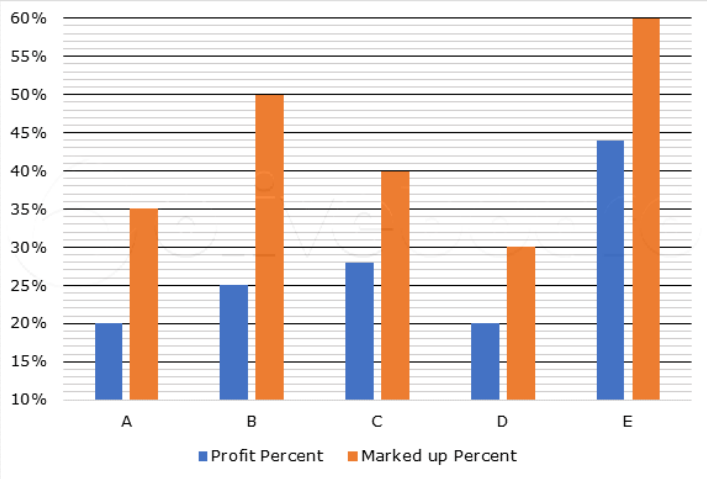
C) Rs. 3248

D) Rs. 4229

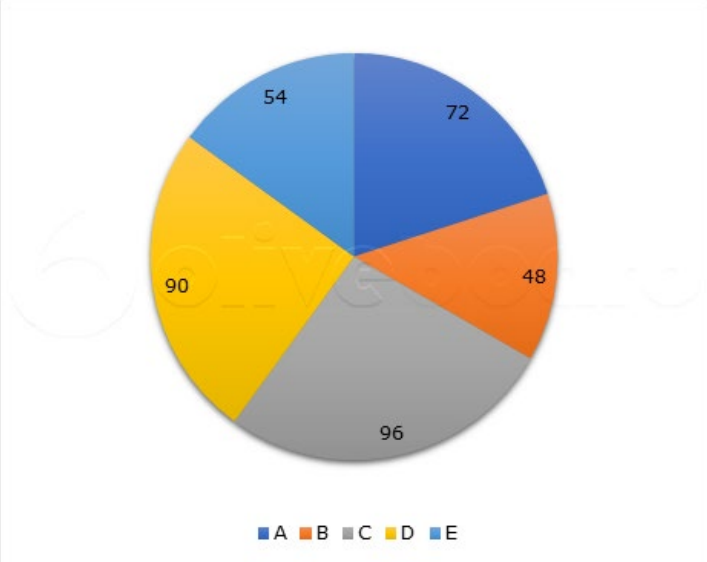
E) None of the above

==========

Directions : Bar graph given below shows the profit per cent earned and marked up per cent over cost price by shopkeeper P on five different items A, B, C, D and E respectively.



Pie chart given below shows the distribution (degree) of selling price of the five different items and sum of the pie chart is Rs.12000.



Q86. A customer went to shopkeeper P to purchase item C, while billing the shopkeeper by mistake interchanges the marked up per cent and discount per cent, then new amount paid by the customer to purchase that item is approximately what per cent of the actual cost price of the item?

A) 120%

B) 75%

C) 80%

D) 65%

E) 135%

==========

Q87. Shopkeeper sold two units of item D and overall, he earns 24% profit, he sold first unit at mentioned selling price and second unit at new selling price. If on second unit, ratio of numerical value of marked up per cent to that of discount per cent is 3: 1, then marked price of first unit is what per cent of that of second unit where all the per cent values are integer?

A) 81.25%

B) 76.25%

C) 88.25%

D) 72.25%

E) None of these

==========

Q88. If the shopkeeper sold two items E and F together and overall, he earns 22% profit. If he marked up the price of item F by 40% above its cost price and allows 20% discount, then what is the ratio of total profit amount earned after selling both the items to the total marked up amount of both the items together?

A) 64: 145

B) 8: 15

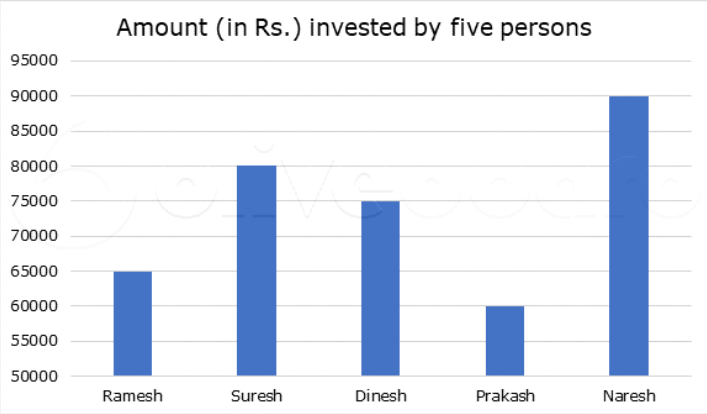
C) 48: 125

D) 88: 185

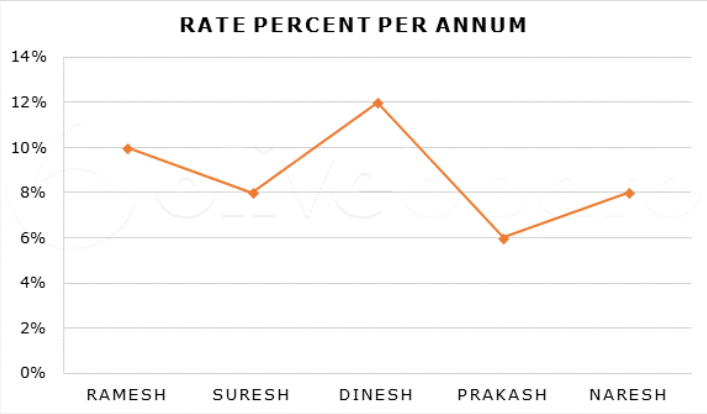
E) None of these

==========

Directions : The following bar graph shows amount invested by five persons either on SI or on CI.



The line graph represents the rate percent at which they invested the amount.



Q89. If Ramesh invested his amount on simple interest for ten years and Suresh invested his amount on compound interest for three years, what will be the difference between total amount collected by Ramesh and Suresh after respective time period?

A) Rs.24768.08

B) Rs.28645.02

C) Rs.29223.04

D) Rs.26442.06

E) None of these

==========

Q90. Find the respective ratio of the interest earned by Dinesh and Naresh, if Dinesh invested his amount on simple interest for 8 years and Naresh invested his amount on simple interest for 5 years.

A) 3:2

B) 2:3

C) 3:1

D) 2:1

E) None of these

==========

Q91. Prakash invested 2/3rd of his amount on Compound Interest for two years and rest on SI for 5 years. Find the total interest earned by him.

A) Rs.4498

B) Rs.6858

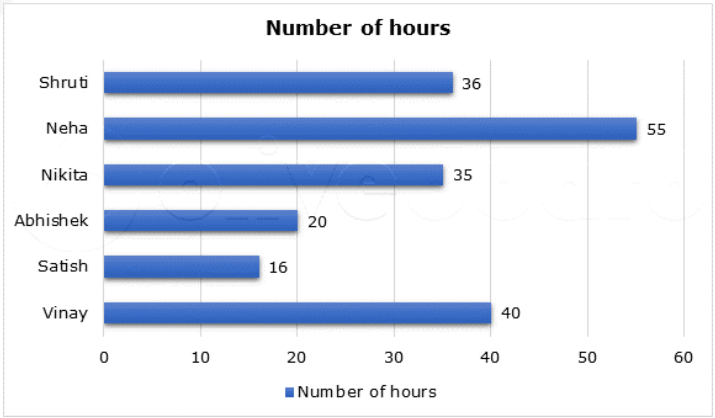
C) Rs.8424

D) Rs.10944

E) None of these

==========

Directions : The following graph shows number of hours required for 6 different persons individually to complete a task.



Q92. Abhishek and Satish started the task and worked for certain number of hours together after which Vinay joined them. Abhishek, Satish and Vinay worked together for 3 hours less than the time taken by Abhishek and Satish together. Now, Satish left the task midway and the remaining task was completed by Abhishek and Vinay in 2 hours 10 minutes. What is the total number of hours taken to complete the task?

A) 8(1/3) hrs

B) 9(1/6) hrs.

C) 7(2/3) hrs.

D) 4(3/5) hrs.

E) Other than above

==========

Q93. Neha started the task and after 1 hour Shruti joined Neha and after another hour Nikita joined them. If after one hour and 30 minutes Vinay and Satish joined them and all five worked for another 2 hours, What percent of task did they complete?

A) 30%

B) 45%

C) 40%

D) 60%

E) Other than the above

==========

Q94. If Vinay solved some number questions for 2 hours, Nikita solved some number of questions for 7 hours and Neha solved some number of questions for 16.5 hours and the total questions solved by them were 253, then how many questions can Abhishek, Shruti and Satish solve in 216 minutes?

A) 253.5

B) 245.2

C) 225.1

D) 232.3

E) 240.6

==========

Directions : Read the data given in the paragraph carefully and answer the questions given below:

Train A of length 250 meters can cross another train B running in opposite direction with speed 30 km/h in 19.2 seconds. Speed of train A is **'A'** km/h and train B can cross a platform of similar length in 36 seconds. Ramesh is running inside train A in same direction as that of train, can cross that platform in 10.8 seconds. In a 400 meters race Ramesh gives Mahesh a start of 50 meters who is travelling with speed 4 km/h and still beat him by **'B'** meters. Ramesh got Rs.25000 prize amount for winning the race and **'C'**% of it he used to purchase a cycle whose price depreciates every year 10% and remaining he invested in a scheme that offers 20% simple rate of interest. After 2 years from present, his present worth(cycle + investment) will increase by Rs.4100. From the interest amount received after 2 years started a business along with Mahesh whose initial capital is Rs.1200 more than that of Ramesh and after 5 months Ramesh and Mahesh withdraw Rs.1000 and Rs.1200 respectively from their capital. Total profit from the business after a year is Rs.1320 out of which profit amount of Mahesh is **'D'**. Mahesh went to a village fair where he has to hit a target and he will be given three chances to do this and as soon as he hit the target, he will be declared winner. Probability that he hit the target in an attempt is (1/5) and probability that he won that game is **'E'**. Now, after finishing his game Mahesh started running towards his home with his usual speed and takes 45 minutes to reach home which is **'F'** km far from the village fair.

Q95. Value of A = ?

A) 30

B) 50

C) 60

D) 45

E) None of these

==========

Q96. Value of B = ?

A) 20

B) 30

C) 50

D) 40

E) None of these

==========

Q97. Value of C = ?

A) 75

B) 60

C) 50

D) 40

E) None of these

==========

Q98. Value of D = ?

A) 720

B) 1080

C) 900

D) 800

E) None of these

==========

Q99. Value of E = ?

A) 12/35

B) 56/125

C) 61/125

D) 8/25

E) None of these

==========

Q100. Value of F = ?

A) 2

B) 6

C) 4

D) 5

E) None of these

==========

Explanation/Solution:-

Probability of drawing a blue colour ball from bag A = 1 - (16 + 24 + 8 + 32)/100 = 1/5

Total number of blue colour balls in bag A = 10

Total number of balls of all colour in bag A = 10 * (5/1) = 50

Probability of drawing a yellow colour balls from bag B = 1 - (15 + 20 + 30 + 10)/100 = 1/4

Total number of yellow colour balls in bag B = 10

Total number of balls of all colour in bag B = 10 * (4/1) = 40

Total number of black colour balls in bag A = 16% of 50 = 8

Total number of black colour balls in bag B = 15% of 40 = 6

Similarly, we can calculate other values .....

Colour/Bags	Bag A	Bag B
Black	16% of 50 = 8	15% of 40 = 6
Red	24% of 50 = 12	20% of 40 = 8
White	8% of 50 = 4	30% of 40 = 12

Blue	10	40 * (1/10) = 4
Yellow	50 * (8/25) =16	10
Total	50	40

Q1 - B

Explanation/Solution:-

Probability of drawing two black colour balls from bag A = $^{8}C_2/^{50}C_2$

= (8 * 7)/(50 * 49) = 4/175

Probability of drawing two blue colour balls from bag B = $^{4}C_2/^{40}C_2$

= (4 * 3)/(40 * 39) = 1/130

Required ratio = (4/175): (1/130) = 104: 35

Q2 - B

Explanation/Solution:-

Probability of drawing one red ball from bag B = 8/40 = 1/5

Probability of drawing one yellow ball from bag A = 16/50 = 8/25

Required probability = (1/5) * (8/25) = 8/125

Q3 - D

Explanation/Solution:-

Remaining balls in bag A = 50 - 10 = 40

Probability of selecting a blue ball from bag A = 3/20

So, after transferring number of blue balls in bag A = 40 * (3/20) = 6

Total blue balls transferred from bag A to bag B = (10 - 6) = 4

Total blue balls in bag B after transferring = 4 + 4 = 8

Total balls in bag B = 40 + 10 = 50

Probability of selecting a blue ball from bag B = 8/50 = 4/25

Explanation/Solution:-

Q4 - B

Explanation/Solution:-

C.P of 1 kg of Mixed Wheat

= (4*40 + 6*50)/(4 + 6) = Rs 46

S.P of 1 kg of Mixed Wheat

= 60(1 - 10/100)(1 - 10/100)

= Rs 48.60

Profit% = ((48.60 - 46)/46)*100 = 130/23%

∴ x/23 = 130/23

=> x = 130

C.P of 1 kg of Mixed Rice = (1*100 + 1*60 + 2*40)/(1 + 1 + 2) = Rs 60

Let it be Marked-up by z%

Given, z = y/9

M.P of 1 kg of Mixed Rice = 40(1 + z/100)

S.P of 1 kg of Mixed Rice = 40(1 + z/100)(1 - 10/100)(1 - 25/100)

= 27(1 + z/100)

For no profit or loss,

S.P = C.P

=> 27(1 + z/100) = 60

=> 1 + z/100 = 60/27

=> z/100 = 11/9

=> z = 1100/9

∴ y/9 = 1100/9

=> y = 1100

∴ (y+200)/x = 1300/130 = 10

Q5 - A

Explanation/Solution:-

Let the C.P of the mixture be Rs 'a' kg.

M.P of Mixture = a(1 + 25/100)

S.P of Mixture = (125a/100)*(1 - 20/100)*(1 - 10/100)

= (125a/100)*(80/100)*(90/100)

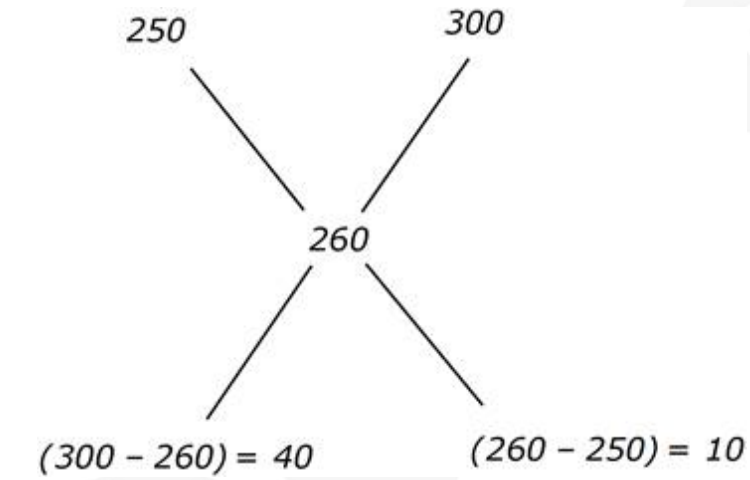
= 9a/10

Given, a - 9a/10 = 26

=> a/10 = 26

=> a = Rs 260

By Alligation Method:



The ratio in which Normal and Good quality Apples are mixed = 40:10 = 4:1

∴ x = 1

Now Normal quality Oranges are mixed with a new type of Orange with price Rs 'y'/kg.

Let the C.P of the mixture be Rs 'b'/kg.

M.P of the mixture = (b + 320)

S.P of Mixture = (b + 320)*(1 - 20/100)*(1 - 30/100) = (56/100)*(b + 320)

Profit% = (((56/100)(b + 320) - b)/b)*100 = 20

=> ((56/100)*(b + 320))/b - 1 = 1/5

=> ((56/100)*(b + 320))/b = 6/5

=> 6b = 5*(56/100)*(b + 320)

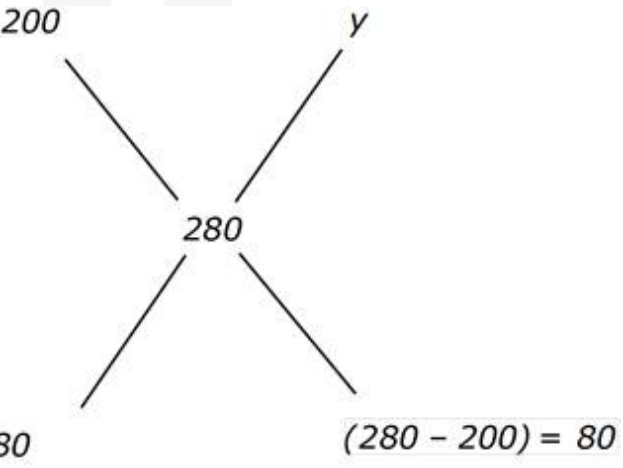
=> 6b = 14b/5 + 896

=> 30b = 14b + 4480

=> 16b = 4480

=> b = 280

By Alligation Method:



Given, (y - 280)/80 = 3/2

=> 2y - 560 = 240

=> y = 400

=> (y - 10x)/13 = 390/13 = 30

Q6 - B

Explanation/Solution:-

C.P of Mixed Wheat = (40 + 50 + 60)/3 = Rs 50/kg

C.P of Mixed Rice = (40*2 + 60*2 + 100)/(2 + 2 + 1) = Rs 60/kg

M.P of Mixed Wheat = 50(1 + 50/100) = Rs 75/kg

M.P of Mixed Rice = 60(1 + 50/100) = Rs 90/kg

S.P of Mixed Wheat = 75(1 - 10/100) = Rs 67.5/kg

S.P of Mixed Rice = 90(1 - 10/100) = Rs 81/kg

Required difference = 81 - 67.5 = **Rs 13.5**

C.P of Mixed Apples = (250*2 + 300 + 400)/(2 + 1 + 1) = Rs 300/kg

C.P of Mixed Oranges = (200 + 250 + 300)/3 = Rs 250/kg

M.P of Mixed Apples = 300(1 + 40/100) = Rs 420/kg

M.P of Mixed Oranges = 250(1 + 40/100) = Rs 350/kg

S.P of Mixed Apples = 420(1 - 20/100) = Rs 336/kg

S.P of Mixed Oranges = 350(1 - 5/100) = Rs 332.5/kg

Required difference = 336 - 332.5 = Rs 3.5

Required Ratio = 13.5:3.5 = 27:7

Q7 - E

Explanation/Solution:-

Let the C.P of the Mixed Rice be Rs 'a'/kg

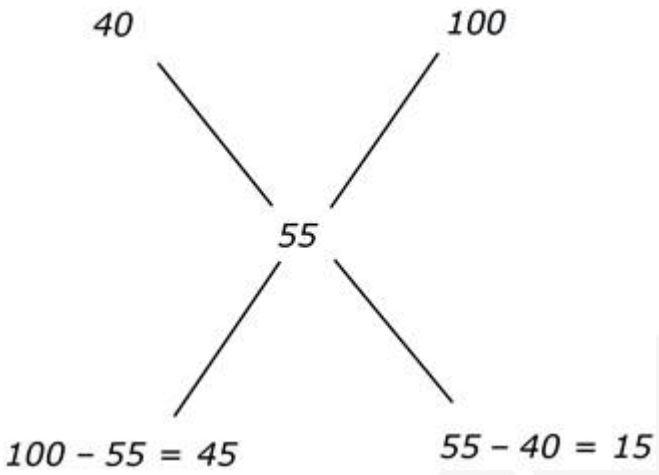
M.P of mixed rice = (a + 45)

S.P of Mixed Rice = (a + 45)(1 - 25/100)(1 - 20/100) = (3/5)*(a + 45)

Given, Profit = (3/5)*(a + 45) - a = 5

=> a = 55

By Alligation Method:



Ratio = 45:15 = 3:1

∴ x = 3

Let the C.P of Mixed Apples be Rs 'b'/kg

M.P of Mixed Apples = b(1 + 40/100) = 7b/5

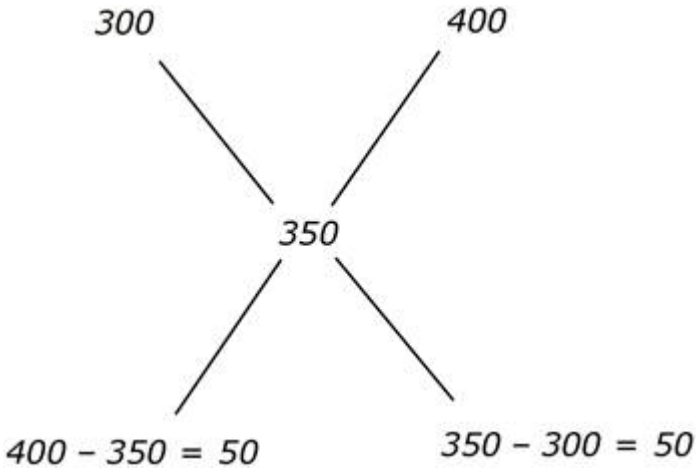
S.P of Mixed Apples = (7b/5)(1 - 10/100) = 63b/50

Given, 63b/50 = 441

=> b/50 = 7

=> b = 350

By Alligation Method:



Ratio = 50:50 = 1:1

∴ y = 1

∴ $2x^2 - 3y^2 = 2(3)^2 - 3(1)^2 = 15$

Q8 - D

Explanation/Solution:-

C.P of Mixed Apples

= (250*3 + 300*2)/(3 + 2)

= Rs 270/kg

S.P of Mixed Apples

= 400(1 - 5/100)(1 - 10/100)(1 - 20/100)

= Rs 273.60/kg

Profit% = ((273.60 - 270)/270)*100 = 1.33%

Explanation/Solution:-

Q9 - A

Explanation/Solution:-

Let the total volumes of Milk, Water and Honey in solution 4 be 18V ml,7V ml and 2V ml respectively.

27V =540

V=20 ml

Volumes of Milk, Water and Honey in solution 4 are 360 ml,140 ml and 40 ml respectively.

Let the total volumes of Milk, Water and Honey in solution 3 be Ma ml, 5a ml and 1a ml respectively.

But we have given (5a +140) / (1a +40) = 95/22

110a + 3080 = 95a + 3800

15a =720

a = 720/15 = 48 ml

Volumes of Milk, Water and Honey in solution 3 are 48M ml, 240 ml and 48 ml respectively.

We have given that (48M + 360)/ (240 +140) =42/19

(48 M +360) /(380) =42/19

48M +360 =840

48M =480

M=10

Q10 - D

Explanation/Solution:-

Let the volumes of milk, water and honey in solution 2 be 30a ml,10a ml and Ha ml respectively.

Total volume of solution 2 = (40 + H) a ml

(10a) - (Ha) =270

(10 -H) a =270----------(1)

and,

30a -10a =600

20a=600

a = 30

Substituting in equation 1 we get

10-H =9

H=1

Volume of honey =30 ml

Q11 - C

Explanation/Solution:-

Let the total volume of solution 1 be 5V and the total volume of solution 4 be 3V

Total volume of Water in solutions 1 and 4 together = ((W/ (47 +W)) x 5V) + ((7/ (27) x3V)

= ((5W/ (47+ W)) +(7/9)) x V

= (52W +329) x (V/(9x (47 + W)))

(52W +329) x (V/ (9x (47 + W))) = 570 ------- (1)

Total volume of Honey in solutions 1 and 4 together = ((2/ (47 +W)) x 5V) + ((2/ (27) x3V)

= ((10/ (47+ W)) +(2/9)) x V

= ((2W +184) x (V/ (9x (47 + W)))

((2W +184) x (V/ (9x (47 + W))) = 60 .....(2)

Dividing (1) by 2 we get

(52W + 329)/ (2W + 184) =19/2

104W +658 =38W + 3496

66W = 2838

W = 43

Substituting in equation 2,

(86 +184) x(V/90) =60 x9

3V =60 x 9

V =180

Required volume = (43/90) x900 =430 ml

Explanation/Solution:-

Q12 - C

Explanation/Solution:-

Let distance between the homes of employees A and Q from their respective offices is 12x and 7x respectively.

Distance between the home of employee P from his office = (12x - 12)

Distance between the home of employee B from his office = (7x + 2)

Let speed of employee P is 'P'.

According to question-

[(12x - 12)/P] - [12x/32] = (30/60) ..... (1)

[7x/16] - [(7x + 2)/18] = (5/60)

[7x/8] - [(7x + 2)/9] = (1/6)

(63x - 56x - 16) = 12

7x = 28

x = 4

From equation (1)-

[(48 - 12)/P] - [48/32] = (30/60)

36/P = 0.5 + 1.5 = 2

P = 18 km/h

Required difference = 18 - 18 = 0

Q13 - B

Explanation/Solution:-

Let distance travelled by C = D km

Distance travelled by R = (D + 8) km

Speed of C = 24 km/h

Speed of R = 24 * (100/96) = 25 km/h

According to question-

[(D + 8)/25] - [D/24] = (16/60)

(24D + 192 - 25D) = 160

D = 32 km/h

Time taken by C when he switches his speed with R = D/25 = 32/25 = 1.28 hours

Time taken by R when he switches his speed with C = (D + 8)/24 = 40/24 = (5/3) hours

Required difference = [(5/3) - 1.28]*60 = 23.2 minutes

Q14 - C

Explanation/Solution:-

Let speed of A and P is 'A' km/h

Let speed of C & R is 'C' and 'C + 10' km/h respectively.

Distance between office of P from his room = 60 - 12 = 48 km

Distance between office of R from his room = 32 + 8 = 40 km

According to question-

[60/A] - [48/A] = (30/60)

(12/A) = 0.5

A = 24

Speeds of A and P is 24 km/h each.

[32/C] - [40/(C + 10)] = (16/60)

C^2 + 40C - 1200 = 0

(C - 20)(C + 60) = 0

C = 20

Speed of C = C = 20 km/h

Speed of R = C + 10 = 30 km/h

Required ratio = (60/24): (32/30) = 75: 32

Q15 - A

Explanation/Solution:-

Let distance of office of D from room = 100x

Distance of office of S from room = 68% of 100x = 68x

100x - 68x = 8

x = 0.25

Distance of office of D from room = 100x = 25 km

Distance of office of S from room = 68x = 17 km

Let speed of D = 100D km/h

Speed of S = 75% of D = 75D

According to question-

[25/100D] - [17/75D] = (7/60)

(75 - 68)/300D = 7/60

7/300D = 7/60

D = 0.2

Speed of D = 100D = 20 km/h

Speed of S = 75D = 15 km/h

Time taken by D to reach office = (25/20) = 1.25 hours

Time taken by S to reach office = (17/15) hours

Required per cent = [(17/15)/1.25] * 100 = 272/3% = 90(2/3)%

Q16 - E

Explanation/Solution:-

Let distance of E's office from his room = E km

Distance of T's office from his room = (E + 2) km

Let distance of F's office from his room = F km

Distance of U's office from his room = (F + 8) km

According to question-

[(E + 2)/16] - [E/24] = (30/60)

(3E + 6 - 2E)/48 = 0.5

E + 6 = 24

E = 18

Distance of E's office from his room = E = 18 km

Distance of T's office from his room = (E + 2) = 20 km

According to question-

[(F + 8)/40] - [F/48] = (18/60)

(6E + 48 - 5E)/240 = 0.3

F + 48 = 72

F = 24

Distance of F's office from his room = F = 24 km

Distance of U's office from his room = (F + 8) = 32 km

Sum of distance of room of employees E and T from their respective offices = 18 + 20 = 38 km

Sum of distance of room of employees F and U from their respective offices = 24 + 32 = 56 km

Required difference = 56 - 38 = 18 km

Explanation/Solution:-

Time taken by P to reach office from home = 1.5 hours

Distance between office and home of P = 1.5 * 20 = 30 km

Time taken by Q to reach office from home = 1.5 * (4/5) = 1.2 hours

Distance between office and home of Q = 1.2 * (20 - 5) = 18 km

Distance between office and home of R = 18 * (4/3) = 24 km

Time taken by R to reach office from home = 1 hours

Distance between office and home of S = [(30 + 18 + 24)/3] + 21 = 45 km

Time taken by S to reach office from home = 45/15 = 3 hours

Time taken by T to reach office from home = 3 hours

Distance between office and home of T = 3 * (15 + 5) = 60 km

Persons	Distance between home and office (km)	Time taken to reach office from home (hours)
P	30	1.5
Q	18	1.2
R	24	1
S	45	3
T	60	3

Q17 - B

Explanation/Solution:-

Fare amount when person P goes to office from home by Ola Mini = Base Fare + 5% GST on Base Fare + Extra charges + 20% GST on extra charges

Base Fare for Ola mini = 5 * 30 + 20 * 1.5 = Rs.180

Extra charges = 25% of 180 = Rs.45

Fare amount = 180 + 5% of 180 + 45 + 20% of 45

= 189 + 54

= Rs.243

Fare amount when person P return from office to home by Uber Micro = Base Fare + 5% GST on Base Fare

Base Fare for Uber Micro = 15 * 30 + 20 * 1.5 = Rs.480

Fare amount = 480 + 5% of 480 =

= 480 + 24

= Rs.504

Required difference = 504 - 243 = Rs.261

Q18 - D

Explanation/Solution:-

Let distance between Delhi to point A and distance between point A to Agra is '5x' and '4x' respectively.

According to the question:

(5x/25) + (4x/20) = 6:00 PM - 8:00 AM = 10 hours

(2x/5) = 10

x = 25

Distance between Delhi to point A = 5x = 125 km

Distance between point A to Agra = 4x = 100 km

Base Fare for Ola Micro = 10 * 125 + 30 * (125/25) = Rs.1400

Extra charges = 25% of 1400 = Rs.350

Fare of Ola Micro = 1400 + 5% of 1400 + 350 + 20% of 350 = Rs.1890

Base Fare for Uber Mini = 10 * 100 + 20 * (100/20) = Rs.1100

Fare of Uber Mini = 1100 + 5% of 1100 = Rs.1155

Total Fare = 1890 + 1155 = Rs.3045

Q19 - C

Explanation/Solution:-

Base Fare for Uber Mini = 10 * 60 + 20 * 3 = Rs.660

Fare of Uber Mini for person T when goes to office = 660 + 5% of 660 = Rs.693

Base Fare for private cab = 8 * 60 = Rs.480

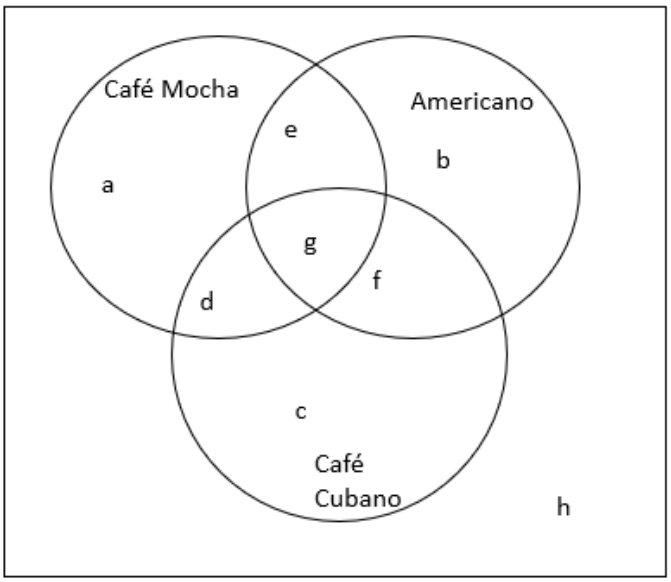
Taxes = 25% of 480 = Rs.120

Fare for private cab when person T returns from office = 480 + 120 = Rs.600

Required difference = 693 - 600 = Rs.93

Explanation/Solution:-

Let areas in Venn-diagram be a, b, c, d, e, f, g and h.



Total number of employees working in the company is 800

Number of employees who does not like coffee = h = 800 * 42.5/100 = 340

Number of employees who like coffee = 800 - 340 = 460

So, a + b + c + d + e + f + g = 460 ---(1)

The number of employees who like all three kind of coffee is 5% of total employees

g = 5/100 * 800 = 40

The number of employees who like café mocha is 10 less than the number of employees who like café Cubano

So, (a + d + e + g) = (c + d + g + f) - 10

=> a + e = c + f - 10 ---(2)

The number of employees who like café mocha and americano but not café Cubano is half of the number of employees who like all three kind of coffee

So, e = 1/2 * g = 1/2 * 40 = 20

The number of employees who like café mocha and café Cubano but not americano is 10 less than the number of employees who like only americano

So, d = b - 10

=> b - d = 10 ---(3)

The number of employees who like americano and café Cubano but not café mocha is 10 more than the number of employees who like café mocha and americano but not café Cubano

So, f = 10 + e = 30

From equation (2), we get

=> a + 20 = c + 30 - 10

=> a = c

And, Number of employees who like only café Mocha is 10 more than the twice of employees who like only americano.

So, a = 10 + 2b ---(4)

From equation (1), we get

a + b + c + d + 20 + 30 + 40 = 460

=> 2a + b + d = 370

From equation (4), we get

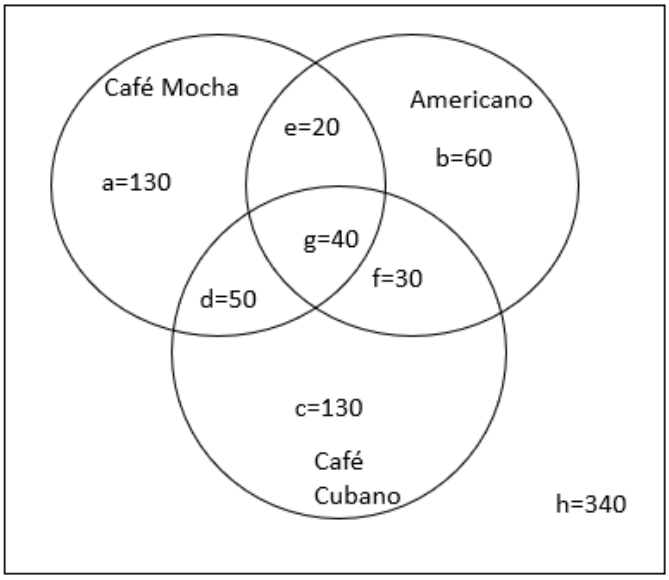
=> 2(10 + 2b) + b + d = 370

=> 5b + d = 350 ---(5)

Adding equation (3) and (5), we get

=> b = 60 and d = 50

So, a = c = 130



Q20 - A

Explanation/Solution:-

Required % = 60/50 * 100 = 120%

Q21 - E

Explanation/Solution:-

Required difference = (130 + 20 + 40 + 50) - (60 + 30 + 40 + 20) = 90

Q22 - C

Explanation/Solution:-

Required total = 20 + 50 + 30 = 100

Explanation/Solution:-

Tabulating data-

	First test					
	Total question attempted (maximum = 100)	Percentage marks	Total marks	Number of questions attempted in section A (maximum = 35)	Number of questions attempted in section B (maximum = 15)	Number of questions attempted in section C (maximum = 50)
M	75	(735/18)%	147	28	11	36
N	60	(450/18)%	90	22	6	32
O	90	(820/18)%	164	31	12	47
P	80	(805/18)%	161	28	10	42
Q	50	(670/18)%	134	21	7	22
R	65	(540/18)%	108	25	8	32

	Second test				
	Total question attempted (maximum = 200)	Percentage marks	Total marks	Number of questions attempted in section X (maximum = 150)	Number of questions attempted in section Y (maximum = 50)
M	110	(216/5)%	432	65	45
N	150	(266/5)%	532	110	40
O	160	(264/5)%	528	118	42
P	90	(178/5)%	356	60	30
Q	175	(208/5)%	416	140	35
R	140	(236/5)%	472	110	30

Q23 - B

Explanation/Solution:-

Marks percentage in first test of N = 450/18 = 25%

Marks percentage in first test = (total marks obtained in section A, B and C)/360 * 100

=> 25 = (total marks obtained in section A, B and C)/360 * 100

=> total marks obtained in section A, B and C = 25 * 360/100

=> total marks obtained in section A, B and C = 90

Marks percentage in second test of N = 266/5 = 53.2%

Marks percentage in second test = (total marks obtained in section X and Y)/1000 * 100

=> total marks obtained in section X and Y = 53.2 * 1000/100 = 532

Total marks obtained by N in both test = 90 + 532 = 622

Marks percentage in first test of R = 540/18 = 30%

Marks percentage in first test = (total marks obtained in section A, B and C)/360 * 100

=> total marks obtained in section A, B and C = 30 * 360/100 = 108

Marks percentage in second test of R = 236/5 = 47.2%

Marks percentage in second test = (total marks obtained in section X and Y)/1000 * 100

=> total marks obtained in section X and Y) = 472

Total marks obtained by R in both test = 108 + 472 = 580

So, required ratio = 622: 580 = 311: 290

Q24 - D

Explanation/Solution:-

Marks obtained by O:

In section A = (31 - 18) * 4 - 18 * 1 = 34

In section C = (47 - 8) * 2 - 8 * 0.5 = 74

Total = 34 + 74 = 108

Marks obtained by P:

In section A = (28 - 16) * 4 - 16 * 1 = 32

In section C = (42 - 6) * 2 - 6 * 0.5 = 69

Total = 32 + 69 = 101

Marks obtained by Q:

In section A = (21 - 4) * 4 - 4 * 1 = 64

In section C = (22 - 8) * 2 - 8 * 0.5 = 24

Total = 64 + 24 = 88

Required average = (108 + 101 + 88)/3 = 99

Q25 - D

Explanation/Solution:-

Marks obtained by M:

Total marks obtained in second test = 432

In section Y = 40 * 8 - 2 * 2 - 4 * 3 = 304

So, in section X = 432 - 304 = 128

Marks obtained by N:

Total marks obtained in second test = 532

In section Y = 30 * 8 - 2 * 2 - 4 * 4 - 8 * 4 = 188

So, in section X = 532 - 188 = 344

So, required % = (344 - 128)/128 * 100 = 168.75%

Q26 - B

Explanation/Solution:-

Marks obtained in section A and C together in first test:

By M = 147 - (5 * 8 - 6 * 2) = 147 - 28 = 119

By N = 90 - (3 * 8 - 3 * 2) = 90 - 18 = 72

BY O = 164 - (8 * 8 - 4 * 2) = 164 - 56 = 108

By P = 161 - (8 * 8 - 2 * 2) = 161 - 60 = 101

By Q = 134 - (6 * 8 - 1 * 2) = 134 - 46 = 88

By R = 108 - (4 * 8 - 4 * 2) = 108 - 24 = 84

So, correct sequence is M (119) > O (108) > P (101) > Q (88) > R (84) > N (72)

Explanation/Solution:-

Time taken by Aman to complete 20% of the work = 8 days

=> Time taken by Aman to complete 1% of the work = 8/20 days

=> **Time taken by Aman to complete 100% of the work = 8/20 x 100 = 40 days**

Time taken by Bhuvan to complete 15% of the work = 9 days

=> Time taken by Bhuvan to complete 1% of the work = 9/15 days

=> **Time taken by Bhuvan to complete 100% of the work = 9/15 x 100 = 60 days**

Time taken by Suman to complete 10% of the work = 3 days

=> Time taken by Suman to complete 1% of the work = 3/10 days

=> **Time taken by Suman to complete 100% of the work = 3/10 x 100 = 30 days**

Time taken by Tapan to complete 25% of the work = 5 days

=> Time taken by Tapan to complete 1% of the work = 5/25

=> **Time taken by Tapan to complete 100% of the work = 5/25 x 100 = 20 days**

Time taken by Madan to complete 30% of the work = 12 days

=> Time taken by Madan to complete 1% of the work = 12/30 days

=> **Time taken by Madan to complete 100% of the work = 12/30 x 100 = 40 days**

Now,

1/Aman + 1/Ankita = 13/200

=> 1/40 + 1/Ankita = 13/200

=> 1/Ankita = 13/200 - 1/40

=> 1/Ankita = (13 - 5)/200

=> 1/Ankita = 8/200

=> **1/Ankita = 1/25**

1/Aman + 1/Ankita + 1/Binita = 9/100

=> 13/200 + 1/Binita = 9/100

=> 1/Binita = 9/100 - 13/200

=> 1/Binita = (18 - 13)/200

=> 1/Binita = 5/200

=> **1/Binita = 1/40**

1/Ankita + 1/Sushma = 3/50

=> 1/25 + 1/Sushma = 3/50

=> 1/Sushma = 3/50 - 1/25

=> 1/Sushma = (3 - 2)/50

=> **1/Sushma = 1/50**

1/Tapan + 1/Anjana = 1/12

=> 1/20 + 1/Anjana = 1/12

=> 1/Anjana = 1/12 - 1/20

=> 1/Anjana = (5 - 3)/60

=> 1/Anjana = 2/60

=> **1/Anjana = 1/30**

1/Kamini + 1/Madan = 1/15

=> 1/Kamini + 1/40 = 1/15

=> 1/Kamini = 1/15 - 1/40

=> 1/Kamini = (8 - 3)/120

=> 1/Kamini = 5/120

=> **1/Kamini = 1/24**

Q27 - B

Explanation/Solution:-

Let, required time = n days

9/40 + 3/40 + 3/30 + n/60 = 1

=> 12/40 + 1/10 + n/60 = 1

=> 3/10 + 1/10 + n/60 = 1

=> 4/10 + n/60 = 1

=> 2/5 + n/60 = 1

=> n/60 = 1 - 2/5

=> n/60 = (5 - 2)/5

=> n/60 = 3/5

=> n = 60 x 3/5

=> n = 36 days

Q28 - E

Explanation/Solution:-

Let, time taken by Suman and Kamini to complete the work = m days

And time taken by Tapan, Ankita and Sushma to complete the work = n days

m x (1/30 + 1/24) = 1

=> m x (4 + 5)/120 = 1

=> m = 120/9

=> m = 40/3 days

And

n x (1/20 + 1/25 + 1/50) = 1

=> n x (5 + 4 + 2)/100 = 1

=> n = 100/11 days

Required percentage = (40/3)/(100/11) x 100

= 146.67%

= 147% approx.

Q29 - C

Explanation/Solution:-

Let, Ankita worked for n days.

10/40 + 10/60 + n/25 + (n + 1)/30 = 1

=> ¼ + 1/6 + (6n + 5n + 5)/150 = 1

=> (11n + 5)/150 = 1 - ¼ - 1/6

=> (11n + 5)/150 = (12 - 3 - 2)/12

=> 11n + 5 = 150 x 7/12

=> 11n = 175/2 - 5

=> n = 1/11 x (175 - 10)/2

=> n = 165/22

Explanation/Solution:-

Total seats in the bus = 45

Male seats in the bus = 45 * (5/9) = 25

Female seats in the bus = 45 * (4/9) = 20

Male seat reserved for emergency = 20% of 25 = 5

Female seat reserved for emergency = 25% of 20 = 5

Fare for one male adult = Rs.120

Fare for one female adult = Rs.100

Fare for one male kid = 75% of 120 = Rs.90

Fare for one female kid = 75% of 100 = Rs.75

Maximum amount of fare that can be collected from the bus on any day = (25 * 120) + (20 * 100) = Rs.5000

Sum of male and female passengers in the bus on Monday = 15 * 2 = 30

Let male and female passengers in the bus on Monday is 'x' and '30 - x' respectively.

Male passengers in the bus on Tuesday = (x + 2)

Let female passengers in the bus on Tuesday and Wednesday is 'y' each.

Male passengers in the bus on Friday = y

Male passengers in the bus on Thursday = (y + 2)

Female passengers in the bus on Thursday = (y + 2) - 4 = (y - 2)

According to the question:

(y + 2) + (y - 2) = (x + 2)

2y = x + 2

x = (2y - 2)

Male passengers in the bus on Monday = x = (2y - 2)

Female passengers in the bus on Monday = (30 - x) = 30 - (2y - 2) = (32 - 2y)

Male passengers in the bus on Tuesday = (x + 2) = 2y

Female passengers in the bus on Friday = 15

According to the question:

[(32 - 2y) + y + y + (y - 2) + 15]/5 = 11

30 + y + 15 = 55

y = 10

let male passengers in the bus on Wednesday = z

And,

[(2y - 2) + 2y + z + (y + 2) + y]/5 = 14

6y + z = 70

z = 70 - 60

z = 10

Days	Total Male passengers	Total Female passengers
Monday	(2y - 2) = 18	(32 - 2y) = 12
Tuesday	2y = 20	y = 10
Wednesday	z = 10	y = 10
Thursday	(y + 2) = 12	(y - 2) = 8
Friday	y = 10	15

Q30 - D

Explanation/Solution:-

Sum of male and female kids in the bus on Monday = 3 * 2 = 6

Let male and female kids in the bus on Monday = 'x' and '6 - x' respectively.

Male adults in the bus on Monday = (18 - x)

Female adults in the bus on Monday = 12 - (6 - x) = (6 + x)

Total fare collected form the bus on Monday = [(18 - x) * 120] + [x * 90] + [(6 + x) * 100] + [(6 - x) * 75] = 3195

2160 - 120x + 90x + 600 + 100x + 450 - 75x = 3195

5x = 15

x = 3

Required ratio = x: (6 - x) = 3: 3 = 1: 1

Q31 - C

Explanation/Solution:-

Total passengers in the bus on Tuesday = 20 + 10

Total kid passengers in the bus on Tuesday = 26.67% of 30 = 8

Total male kid passengers in the bus on Tuesday = 8 - 30% of 10 = 5

Total male adult passengers in the bus on Tuesday = 20 - 5 = 15

Total female adult passengers in the bus on Tuesday = 10 - 3 = 7

Total fare collected from the bus on Tuesday = [15 * 120] + [5 * 90] + [7 * 100] + [3 * 75] = 1800 + 450 + 700 + 225 = Rs.3175

Maximum fare amount that can be collected from the bus = Rs.5000

Required percent = (3175/5000) * 100 = 63.5%

Q32 - A

Explanation/Solution:-

Total kid passengers in the bus on Wednesday = 2 * 2 = 4

Let male kid and female kid passengers in the bus on Wednesday is 'x' and '4 - x' respectively.

Male adult passengers in the bus on Wednesday = (10 - x)

Female adult passengers in the bus on Wednesday = 10 - (4 - x) = (6 + x)

Total fare collected from the bus on Wednesday = [(10 - x) * 120] + [x * 90] + [(6 + x) * 100] + [(4 - x) * 75] = 41.8% of 5000

1200 - 120x + 90x + 600 + 100x + 300 - 75x = 2090

5x = 10

x = 2

Male kids in the bus on Wednesday = x = 2

Female kids in the bus on Wednesday = (4 - x) = 2

Required difference = 2 - 2 = 0

Q33 - B

Explanation/Solution:-

Female kid passenger in the bus on Thursday = 75% of 8 = 6

Female kid passenger in the bus on Wednesday = 6 - (2 * 3) = 0

Total kid passengers in the bus on Wednesday = 2 * 2 = 4

Male kid passenger in the bus on Wednesday = 4 - 0 = 4

Male kid passenger in the bus on Thursday = (2 * 5) - 6 = 4

Total fare collected from the bus on Wednesday = [6 * 120] + [4 * 90] + [10 * 100] + [0 * 75] = 720 + 360 + 1000 + 0 = Rs.2080

Total fare collected from the bus on Thursday = [8 * 120] + [4 * 90] + [2 * 100] + [6 * 75] = 960 + 360 + 200 + 450 = Rs.1970

Required average = (2080 + 1970)/2 = Rs.2025

Q34 - A

Explanation/Solution:-

Since, only 15 female passengers can sit in the bus and there are already 15 female passengers in the bus on Friday. So, 'x' boarded passengers should be male.

Male adults boarded in the bus on Friday = (x - 1)

Total kids in the bus on Friday before boarding of 'x' passengers = 40% of (10 + 15) = 10

Male kid passengers in the bus = 10 * (1/5) + 1 = 3

Female kid passengers in the bus = 10 * (4/5) = 8

Male adult passengers in the bus = (10 - 2) + (x - 1) = (7 + x)

Female adult passengers in the bus = 15 - 8 = 7

Total original fare collected the bus before boarding of 'x' passengers = [8 * 120] + [2 * 90] + [7 * 100] + [8 * 75] = 960 + 180 + 700 + 600 = Rs.2440

Total original fare collected the bus after boarding of 'x' passengers = [(7 + x) * 120] + [3 * 90] + [7 * 100] + [8 * 75] = 2440 + 570

840 + 120x + 270 + 700 + 600 = 3010

120x = 600

x = 5

Explanation/Solution:-

Total population = 8000

For building A:

Total population = 10% of 8000 = 800

White = 150, blue = 150 * 1/3 = 50

Then, 800 = 2X - 2.5Y + 2.5X - 3Y + 150 + 50

9X - 11Y = 1200

For building B:

Total population = 25% of 8000 = 2000

White + blue = 1000

Then, 2000 = 2X - 2.5Y + 2.5X - 3Y + 1000

9X - 11Y = 2000

For building C:

Total population = 15% of 8000 = 1200

White + blue = 150 + 100 + 550 = 800

Then, 1200 = 2X - 2.5Y + 2.5X - 3Y + 800

9X - 11Y = 800

For building D:

Total population = 35% of 8000 = 2800

White + blue = 4500 - 200 - 1000 - 800 - 300 = 2200

Then, 2800 = 2X - 2.5Y + 2.5X - 3Y + 2200

9X - 11Y = 1200

For building E:

Total population = 15% of 8000 = 1200

White + blue = 300

Then, 1200 = 2X - 2.5Y + 2.5X - 3Y + 300

9X - 11Y = 1800

Let total users in Nike = n

Then, total users in Adidas = n + 30

So, 8000 = 1780 + n + n + 30 + 2270

n = 1960

Code:

Total users = 1780

E = 250

B = 3C/2

D = 2C

A = (2X - 2.5Y)for building D - 20

Nike:

Total users = 1960

B = 6% of 8000 = 480

E = 480 - 200 = 280

A = 5C/4

Adidas:

Total users = 1960 + 30 = 1990

C = 9D/10

B = (2.5X - 3Y)for building B + 50

A = females in building A - 80

E = 270

Levis:

Total users = 2270

C = 300

D = 4 * (150 + 100) = 1000

Then, E = 1200 - 250 - 280 - 270 = 400

B = (2X - 2.5Y)for building E + 45

Q35 - C

Explanation/Solution:-

For building A:

350 = 2.5X - 3Y

And, 9X - 11Y = 1200

Then, X = 500, Y = 300

For building B:

9X - 11Y = 2000

And, 2X - 2.5Y = 1000 * 2/5

Then, X = 1200, Y = 800

Now, Adidas uses from building A = females in building A - 80

= 300 - 80 = 220

Adidas users from building B = (2.5X - 3Y)for building B + 50

= 1000 * 3/5 + 50

= 650

Therefore, difference = 650 - 220 = **430**

Q36 - E

Explanation/Solution:-

For building D:

Y = 1200

Then, 9X - 11 * 1200 = 1200

X = 1600

Now, for Code:

Number of Code users in building A = (2 * 1600 - 2.5 * 1200) - 20 = 180

Now, 1780 = 180 + (3C/2) + C + 2C + 250

C = 300

Then, D = 2 * 300 = 600

Now, number of Code users in building A and D together = 180 + 600 = 780

For Levis:

Number of Levis users in building C and E together = 300 + 400 = 700

Therefore, ratio = 780: 700 = **39: 35**

Q37 - B

Explanation/Solution:-

Levis users:

A = 5B/14

Then, 2270 = (5B/14) + B + 300 + 1000 + 400

B = 420

Now, for building E:

420 = (2X - 2.5Y) + 45

2X - 2.5Y = 375

And, 9X - 11Y = 1800

So, X = 750, Y = 450

Therefore, percentage = (450/8000) * 100 = 5.625% = **6% (approx.)**

Q38 - A

Explanation/Solution:-

For building C:

X = 200 + Y

Then, 9(200 + Y) - 11Y = 800

Y = 500, X = 700

Then, number of people in who like grey color = 2.5 * 700 - 3 * 500 = 250

For building B:

Number of people in who like white color = (1000 - 200)/2 = 400

Therefore, percentage = (250/400) * 100 = **62.5%**

Q39 - D

Explanation/Solution:-

Number of female users of Code, Nike and Levis in building E = 66% of 250 + 45% of 280 + 52% of 400

= 499

Number of male users of Code, Nike and Levis in building E = 250 + 280 + 400 - 499 = 431

Number of female users of Code, Nike and Levis in building C = 800 - 431 - 24 = 345

Therefore, difference = 431 - 345 = 86

Explanation/Solution:-

Data given in all individual questions for the given graph is interrelated, so, we will determine the value of all unknown variables by using data given in respective questions.

From first question:

The number of sick people recommended for immediate treatment from state P in 2013 are 1344 less than the previous year. Then,

1344 = C% of A - 6% of 117600

A * C = 840000...(i)

From second question:

A - H - E = 61132 - 1200F...(ii)

B + G = 2(F - 15)...(iii)

From third question:

It is given that population of state Q is increased by 15% in 2013 than previous year. Then,

E = 115% of 98000 = 112700

E = 112700

In 2012 the ratio of number of people found sick according to test report in state Q and number of people found sick according to test report but did not recommend for immediate treatment from state P is 1: 1. Then,

15% of 98000 = (22 - C)% of A

1470000 = 22A - AC

Then, from (i), we have

1470000 = 22A - 840000

A = 105000

Then, C = 840000/105000 = 8

C = 8

Number of people who visited health camp but did not complete their health check-up test in state Q in 2013 are 74676 less than the number of people visited health camp from state P in same year. Then,

74676 = F% of 117600 - (78890 - G% of E)

74676 = 1176F - 78890 + G% of 112700

1176F = 153566 - 1127G...(iv)

From fourth question:

Average of number of people completed their health check-ups tests from state Q in 2012 and 2013 taken together is 63063. Then,

2 * 63063 = B% of 98000 + G% of E

126126 = 980B + G% of 112700

980B + 1127G = 126126...(v)

From fifth question:

20237 people from state Q in 2012 and 2013 taken together who found sick did not recommend for immediate treatment. Then,

20237 = 15% of 98000 - D + (20 - 9)% of E

20237 = 14700 - D + 11% of 112700

D = 6860

From equation (iii), (iv) and (v), we get

B + G = 2(F - 15)

1176F = 153566 - 1127G

F = (153566 - 1127G)/1176

980B + 1127G = 126126

B = (126126 - 1127G)/980

Then, ((126126 - 1127G)/980) + G = 2 * (((153566 - 1127G)/1176) - 15)

G = 58

B = (126126 - 1127 * 58)/980 = 62

B = 62

F = (153566 - 1127 * 58)/1176 = 75

F = 75

Now, from equation (ii), we get

A - H - E = 61132 - 1200F

105000 - H - 112700 = 61132 - 1200 * 75

H = 21168

Q40 - C

Explanation/Solution:-

Value of C = 8

Q41 - A

Explanation/Solution:-

Number of people visited health camp in state P is 2012

= 78% of A

= 78% of 105000

= **81900**

Q42 - E

Explanation/Solution:-

Average of number of people from state P who did not visit camp in 2012 and 2013 together

= ((100 - 78)% of A + (100 - F)% of 117600)/2

= (22% of 105000 + (100 - 75)% of 117600)/2

= **26250**

Q43 - C

Explanation/Solution:-

Number of people from state Q who visited health camp but did not complete their health check-up test in 2013 = 78890 - G% of E

= 78890 - 58% of 112700

= **13524**

Q44 - A

Explanation/Solution:-

Number of sick people recommended for immediate treatment from state Q in 2012

= D = 6860

Number of people who were not sick according to test report in state P in 2013

= 68680 - H

= 68680 - 21168

= 47512

Therefore, difference = 47512 - 6860
= **40652**

Explanation/Solution:-

Let total amount of Oil in all the five mixtures together = 360x

Mixtures	Oil	Petrol	Kerosene	Ratio (Oil: Petrol: Kerosene)
P	90x	125% of 90x = 112.5x	75% of 90x = 67.5x	4: 5: 3
Q	60x	125% of 60x = 75x	150% of 60x = 90x	4: 5: 6
R	72x	75% of 72x = 54x	50% of 72x = 36x	4: 3: 2
S	108x	75% of 108x = 81x	125% of 108x = 135x	4: 3: 5
T	30x	150% of 30x = 45x	75% of 30x = 22.5x	4: 6: 3

Q45 - C

Explanation/Solution:-

Part of Oil in mixture P = 4/12

Part of Petrol in mixture P = 5/12

Part of Oil in mixture Q = 4/15

Part of Petrol in mixture Q = 5/15

By the rule of alligation:

(4/12) (4/15)

P

4 5

[(4/15) - P]: [P - (4/12)] = 4: 5

(4/3) - 5P = 4P - (4/3)

9P = (8/3)

P = 8/27

By the rule of alligation:

(5/12) (5/15)

Q

4 5

[(5/15) - Q]: [Q - (5/12)] = 4: 5

(5/3) - 5Q = 4Q - (5/3)

9Q = (10/3)

Q = 10/27

Ratio Oil, Petrol and Kerosene in the final mixture = 8: 10: (27 - 8 - 10) = 8: 10: 9

Total amount of newly formed mixture = 12 * (27/2) = 162 litres

Q46 - E

Explanation/Solution:-

Total amount of final mixture = 105 litres

Let amount of Oil, Petrol and Kerosene in final mixture is 'x', 'x' and 'x - 15' litres respectively.

x + x + (x - 15) = 105

x = 40

Ratio of Oil, Petrol and Kerosene in final mixture = x: x: (x - 15) = 40: 40: (40 - 15) = 8: 8: 5

Part of Oil in mixture P = 4/12

Part of Oil in mixture R = 4/9

Part of Oil in final mixture = 8/21

By the rule of alligation:

(4/12) (4/9)

(8/21)

Ratio in which mixtures P and R must be mixed = [(4/9) - (8/21)]: [(8/21) - (4/12)] = (4/63): (4/84) = 84: 63 = 4: 3

Q47 - C

Explanation/Solution:-

Part of Oil in mixture S = 4/12

Part of Oil in mixture T = 4/13

Part of Oil in mixture A = 76/234

By the rule of alligation:

(4/12) (4/13)

(76/234)

X 156

[(4/13) - (76/234)]: [(76/234) - (4/12)] = X: 156

48 - (152/3) = (76X/234) - (4X/12)

(8/3) = 2X/234

X = 312

Let part of Oil in mixture B = 'B'

By the rule of alligation:

(4/12) (4/13)

B

156 312

1 2

[(4/13) - B]: [B - (4/12)] = 1: 2

(8/13) - 2B = B - (1/3)

3B = 37/39

B = 37/117

Explanation/Solution:-

2011:

Let total bottles manufactured = 100a

Total unsold bottles = 20% of 100a = 20a

Total sold bottles = 100a - 20a = 80a

Total bottles sold at 50% profit = 75% of 80a = 60a

Total bottles sold at 20% profit = 80a - 60a = 20a

2012:

Let total bottles manufactured = 300b

Total unsold bottles = 16(2/3)% of 300b = 50b

Total sold bottles = 300b - 50b = 250b

Total bottles sold at 50% profit = 60% of 250b = 150b

Total bottles sold at 20% profit = 250b - 150b = 100b

2013:

Let total bottles manufactured = 100c

Total unsold bottles = 12.5% of 100c = 12.5c

Total sold bottles = 100c - 12.5c = 87.5c

Total bottles sold at 50% profit = 50% of 87.5c = 43.75c

Total bottles sold at 20% profit = 87.5c - 43.75c = 43.75c

2014:

Let total bottles manufactured = 100d

Total unsold bottles = 10% of 100d = 10d

Total sold bottles = 100d - 10d = 90d

Total bottles sold at 50% profit = 40% of 90d = 36d

Total bottles sold at 20% profit = 90d - 36d = 54d

Years	Total manufactured	Total Sold	Sold at 50% profit	Sold at 20% profit	Unsold
2011	100a	80a	60a	20a	20a
2012	300b	250b	150b	100b	50b
2013	100c	87.5c	43.75c	43.75c	12.5c
2014	100d	90d	36d	54d	10d

Q48 - A

Explanation/Solution:-

From III:

Total bottles sold at 50% profit in 2011 if unsold bottles are assumed to be sold = 116(2/3)% of 60a = 70a

Total bottles sold at 20% profit in 2011 if unsold bottles are assumed to be sold = 20a + [20a - (70a - 60a)] = 30a

According to the question:

30a = 36d

a: d = 6: 5

a = 1.2d ..... (1)

We can't calculate the required number.

Statement III alone is not sufficient.

From I and II:

According to the question:

60a: 54d = 4: 3

a: d = 6: 5

a = 1.2d ..... (1)

And,

20a - 10d = 70

From equation (1):

24d - 10d = 70

d = 5 and a = 6

Total number of unsold bottles by the manufactured in the years 2011 and 2014 together = 20a + 10d = 120 + 50 = 170

Statement I and II together are sufficient.

From I and III:

According to the question:

60a: 54d = 4: 3

a: d = 6: 5

a = 1.2d ..... (1)

From statement III we get:

a = 1.2d

Since, both the equations are same. Hence, we can't determine the required number.

Statements I and III together are not sufficient.

From II and III:

According the question:

20a - 10d = 70 ..... (2)

From statement III we get:

a = 1.2d ..... (1)

From (1) and (2):

24d - 10d = 70

d = 5 and a = 6

Total number of unsold bottles by the manufactured in the years 2011 and 2014 together = 20a + 10d = 120 + 50 = 170

Statement II and III together are sufficient.

Q49 - C

Explanation/Solution:-

Quantity I:

Items sold at 20% profit in 2012 = 100b

Unsold items in 2012 = 50b

According to the question:

100b - 50b = 80

b = 1.6

Required difference = 150b - 100b = 50b = 80

Quantity II:

Unsold items in 2013 = 12.5c = 100

c = 8

Sold items in 2013 = 87.5c = 700

Required difference = 700 - 100 = 600

Hence, Quantity I < Quantity II

Q50 - B

Explanation/Solution:-

According to the question:

20a: 12.5c = 6: 5

a = 0.75c ..... (1)

Quantity I:

According to the question:

43.75c - 20a = 115 ..... (2)

From (1) and (2):

43.75c - 15c = 115

28.75c = 115

c = 4 and a = 3

Total number of sold items by the manufacturer in the years 2011 and 2013 together = 80a + 87.5c = 240 + 350 = 590

Quantity II:

According to the question:

20a + 12.5c = 110 ..... (3)

From (1) and (3):

15c + 12.5c = 110

27.5c = 110

c = 4 and a = 3

Total number of sold items by the manufacturer in the years 2011 and 2013 together = 80a + 87.5c = 240 + 350 = 590

Quantity III:

According to the question:

60a - 43.75c = 15 ..... (4)

From (1) and (4):

45c - 43.75c = 15

1.25c = 15

c = 12 and a = 9

Total number of sold items by the manufacturer in the years 2011 and 2013 together = 80a + 87.5c = 720 + 1050 = 1770

Hence, Quantity I = Quantity II < Quantity III

Explanation/Solution:-

AHT for BPO A = 4 + 1.5 = 5.5 minutes

Total scheduled hours for BPO A = 75 * 8 = 600 hours

Similarly, we can calculate AHT and total scheduled hours for other BPOs as well.

BPO	AHT (minutes)	Total Scheduled hours	Available Time (min)	AUX time (min)	Total answered calls
A	5.5	600	P	30	----
B	5 + 2 = 7	60 * 9 = 540	----	----	Q
C	3 + 1 = 4	80 * 7.5 = 600	11c	6c	Q + 5
D	6 + 2 = 8	120 * 6 = 720	175	91	(140 - 40)/2 = 50
E	4.5 + 1.5 = 6	90 * 8.5 = 765	5e	e	(140 + 40)/2 = 90

Q51 - E

Explanation/Solution:-

Total answered calls by A = (3 * 73.33) - (50 + 90) = 80

Total Staffed hours = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= 80 * 5.5 + P + 30

= (470 + P)

Shrinkage percent = [1 - {(470 + P)/600}] * 100

10/100 = (130 - P)/600

130 - P = 60

P = 70

Q52 - C

Explanation/Solution:-

Total answered calls by BPO B = Q = 65

Available time = 65 * (8/13) = 40 minutes

AUX time = 40 - 22 = 18 minutes

Total Staffed hours = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= (65 * 7) + 40 + 18

= 513

Shrinkage percent = [1 - (513/540)] * 100

= 5%

Q53 - B

Explanation/Solution:-

According to the question:

11c - 6c = 50

c = 10

Total Staffed hours of BPO C = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= [(Q + 5) * 4] + 11c + 6c

= (4Q + 190)

Shrinkage percent of BPO C = [1 - {(4Q + 190)/600}] * 100

35/100 = (410 - 4Q)/600

410 - 4Q = 210

4Q = 200

Q = 50

Total Staffed hours of BPO B = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= (50 * 7) + 90 + 46

= 486

Shrinkage percent of BPO B = [1 - (486/540)] * 100

= 10%

Q54 - D

Explanation/Solution:-

Total Staffed hours of BPO D = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= (50 * 8) + 175 + 91 = 666

Shrinkage percent of BPO D = [1 - (666/720)] * 100 = 7.5%

Total Staffed hours of BPO A = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= (70 * 5.5) + P + 30 = (P + 415)

Shrinkage percent of BPO A = [1 - {(P + 415)/600}] * 100

(7.5 + 10)/100 = (185 - P)/600

105 + 185 - P

P = 80

Total Staffed hours of BPO C = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= [(Q + 5) * 4] + 110 + 60 = (4Q + 190)

Shrinkage percent of BPO C = [1 - {(4Q + 190)/600}] * 100

(7.5 + 17.5)/100 = (410 - 4Q)/600

150 = 410 - 4Q

4Q = 260

Q = 65

Required ratio = P: Q = 80: 65 = 16: 13

Q55 - B

Explanation/Solution:-

Total Staffed hours = (Total answered calls * AHT) + Available time in minutes + Productive auxiliary time (AUX) in minutes

= (90 * 6) + 5e + e = (6e + 540)

Shrinkage percent = [1 - {(6e + 540)/765}] * 100

20/100 = (225 - 6e)/765

153 = 225 - 6e

6e = 72

e = 12

Required percent = (e/90) * 100

= (12/90) * 100

= 13.33%

Explanation/Solution:-

Partners	Initial investment	Amount added/withdrew after first 8 months
A	18% of 50000 = 9000	20% of 15000 = 3000
B	20% of 50000 = 10000	14% of 15000 = 2100
C	24% of 50000 = 12000	16% of 15000 = 2400
D	22% of 50000 = 11000	24% of 15000 = 3600
E	16% of 50000 = 8000	26% of 15000 = 3900

Q56 - C

Explanation/Solution:-

Since, investment of E becomes more than investment of C after first '8 + n' months. Then,

Product of investment and period of investment for C

= 8 * 12000 + n * (12000 - 2400)

= 96000 + 9600n

Product of investment and period of investment for E

= 8 * 8000 + n * (8000 + 3900)

= 64000 + 11900n

Then, profit ratio, C: E = 768: 677 = (96000 + 9600n): (64000 + 11900n)

n = 6

Q57 - B

Explanation/Solution:-

Product of investment and period of investment for A

= 9000 * 8 + (9000 - 3000) * 4 + (9000 - 3000 + 2000) * 6

= 144000

Product of investment and period of investment for B

= 10000 * 8 + (10000 + 2100) * 4

= 128400

Product of investment and period of investment for C

= 12000 * 8 + (12000 - 2400) * 4 + (12000 - 2400 + 2000) * 6

= 204000

Product of investment and period of investment for D

= 11000 * 8 + (11000 + 3600) * 4

= 146400

Product of investment and period of investment for E

= 8000 * 8 + (8000 - 3900) * 4 + (8000 - 3900 + 2000) * 6

= 117000

Therefore, profit ratio, A: B: C: D: E = 144000: 128400: 204000: 146400: 117000

= **240: 214: 340: 244: 195**

Q58 - D

Explanation/Solution:-

Let after '8 + m' months, D invested Rs.4000 and E invested Rs. a and also, only after next 'n' months both D and E withdrew Rs.8000. Then,

Product of investment and period of investment for D

= 8 * 11000 + m * (11000 + 3600) + n * (11000 + 3600 + 4000) + 2 * (11000 + 3600 + 4000 - 8000)

= 109200 + 14600m + 18600n

Product of investment and period of investment for E

= 8 * 8000 + m * (8000 + 3900) + n * (8000 + 3900 + a) + 2 * (8000 + 3900 + a - 8000)

= 71800 + 11900m + 11900n + an + 2a

Then, profit ratio, D: E = (109200 + 14600m + 18600n): (71800 + 11900m + 11900n + an + 2a)

From option 1: m = 6, n = 8, a = 2000

Profit ratio, D: E = (109200 + 14600 * 6 + 18600 * 8): (71800 + 11900 * 6 + 11900 * 8 + 2000 * 8 + 2 * 2000)

= 432: 323 ≠ 201: 169

Hence, this option is not possible.

From option 2: m = 4, n = 10, a = 4000

Profit ratio, D: E = (109200 + 14600 * 4 + 18600 * 10): (71800 + 11900 * 4 + 11900 * 10 + 4000 * 10 + 2 * 4000)

= 221: 179 ≠ 213: 277

Hence, this option is not possible.

From option 3: m = 12, n = 2, a = 2000

Profit ratio, D: E = (109200 + 14600 * 12 + 18600 * 2): (71800 + 11900 * 12 + 11900 * 2 + 2000 * 2 + 2 * 2000)

= 201: 154 ≠ 109: 129

Hence, this option is not possible.

From option 4: m = 8, n = 6, a = 4000

Profit ratio, D: E = (109200 + 14600 * 8 + 18600 * 6): (71800 + 11900 * 8 + 11900 * 6 + 4000 * 6 + 2 * 4000)

= 211: 169

Hence, this option is possible.

Explanation/Solution:-

Perimeter of rectangle A = 15% of 1200 = 180 cm = 2 * (length of A + breadth of A)

Length of rectangle A = 90 * 5/9 = 50 cm

Breadth of rectangle A = 90 - 50 = 40 cm

Perimeter of rectangle B = 25% of 1200 = 300 cm = 2 * (length of B + breadth of B)

Length of rectangle B = 150 * 3/5 = 90 cm

Breadth of rectangle B = 150 - 90 = 60 cm

Perimeter of rectangle C = 14% of 1200 = 168 cm = 2 * (length of C + breadth of C)

Length of rectangle C = 84 * 4/7 = 48 cm

Breadth of rectangle C = 84 - 48 = 36 cm

Perimeter of rectangle D = 20% of 1200 = 240 cm = 2 * (length of D + breadth of D)

Length of rectangle D = 120 * 7/12 = 70 cm

Breadth of rectangle D = 120 - 70 = 50 cm

Perimeter of rectangle E = 26% of 1200 = 312 cm = 2 * (length of E + breadth of E)

Length of rectangle E = 156 * 5/6 = 130 cm

Breadth of rectangle E = 156 - 130 = 26 cm

Q59 - D

Explanation/Solution:-

Average of length of all given rectangles

= (50 + 90 + 48 + 70 + 130)/5

= 77.6 cm

Q60 - E

Explanation/Solution:-

Length of rectangles C and E together = 48 + 130 = 178 cm

Breadth of rectangles B and A together = 40 + 60 = 100 cm

Therefore, ratio = 178: 100 = **89: 50**

Q61 - D

Explanation/Solution:-

Perimeter of rectangle B = 300 cm

Sum of breadths of all given rectangles = 40 + 60 + 36 + 50 + 26 = 212 cm

Therefore, difference = 300 - 212 = **88 cm**

Explanation/Solution:-

Q62 - C

Explanation/Solution:-

Let speed of boat in still water is 'x' km/h and speed of stream is 'y' km/h.

Speed of boat in upstream = 20 km/h

Speed of boat in downstream = 20 *3/2 = 30 km/h

=> x - y = 20 and x + y = 30

After solving:

x = 25 and y = 5

Hence speed of stream = 5 km/h

Q63 - B

Explanation/Solution:-

Let speed of stream be y. Then, speed of boat U in still water = 600% of y = 6y

Speed of boat U in upstream = 6y - y = 15 (Given in chart)

=> y = 3 km/h

Speed of boat U in downstream = 6y + y = 7y = 7 * 3 = 21 km/h

Required answer = 21/15 = 1.4 times

Q64 - B

Explanation/Solution:-

Speed of boat P in downstream = 12 + 3 + 3 = 18 km/h

Speed of boat R in downstream = 8 + 2 + 2 = 12 km/h

Required difference in time = 252/12 - 252/18 = 21 - 14 = 7 h

Q65 - D

Explanation/Solution:-

Let distance between A and B = x km.

Upstream speed of boat T = 24 km/h

Downstream speed of boat T = 24 + 6 + 6 = 36 km/h

According to question-

=> x/24 + x/36 = 10

=> x = 144 km

Explanation/Solution:-

Persons/ Months	A		B	
	Income	Savings	Income	Savings
January	35000	20% of 35000 = 7000	45000	40% of 45000 = 18000
February	25000	15% of 25000 = 3750	40000	10% of 40000 = 4000
March	30000	25% of 30000 = 7500	60000	20% of 60000 = 12000

Q66 - D

Explanation/Solution:-

Total amount of savings of person A in all the three months together = 7000 + 3750 + 7500 = Rs.18250

Total income of person A in all the three months together = 35000 + 25000 + 30000 = Rs.90000

P% = (18250/90000) * 100

P = (365/18)

Total amount of savings of person B in all the three months together = 18000 + 4000 + 12000 = Rs.34000

Total income of person B in all the three months together = 45000 + 40000 + 60000 = Rs.145000

Q% = (34000/145000) * 100

Q = (680/29)

P: Q = (365/18): (680/29)

= 2117: 2448

Q67 - C

Explanation/Solution:-

Total savings of person B on February and March together = 4000 + 12000 = Rs.16000

Total amount spent on Food by person B on February and March together = Rs.35000

Total amount spent on Rent by person B on February and March together = 35000 * (100/80) = Rs.43750

Total amount spent on Shopping by person B on February and March together = (40000 + 60000) - (16000 + 35000 + 43750) = Rs.5250

Required per cent = (5250/100000) * 100

= 5.25%

Explanation/Solution:-

In Catering business,

Initial investment by Mohit, Sunil and Punit are Rs. 4a, Rs. 4a and Rs. 3a respectively

After 6 months,

Shyamaly joins with initial investment Rs. 10a.

Mohit, Sunil and Punit again invested Rs. 4b, 3b and 3b respectively.

After 1 year,

Investment of Mohit, Sunil, Punit and Shyamaly Rs. 6c, Rs. 4c, Rs. 5c and Rs. 5c respectively.

After 2 years,

Mohit withdraw = Rs. 2a

Punit withdraw = Rs. 4c

Sunil invest = Rs. 3.5 * 4a = 14a

Shyamaly invest = 16a

After 2.5 years,

Mohit, Sunil, Punit and Shyamaly investment are Rs. 2d, Rs. 4d, Rs. d, Rs. 4d respectively.

Ratio of profit of Mohit, Sunil, Punit and Shyamaly

= [4a * 6 + (4a + 4b) * 6 + (4a + 4b + 6c) * 12 + (4a + 4b + 6c - 2a) * 6 + (4a + 4b + 6c - 2a + 2d) * 6]

: [4a * 6 + (4a + 3b) * 6 + (4a + 3b + 4c) * 12 + (4a + 3b + 4c + 14a) * 6 + (4a + 3b + 4c + 14a + 4d) * 6]

: [3a * 6 + (3a + 3b) * 6 + (3a + 3b + 5c) * 12 + (3a + 3b + 5c - 4c) * 6 + (3a + 3b + 5c - 4c + d) * 6]

: [10a * 6 + (10a + 5c) * 12 + (10a + 5c + 16a) * 6 + (10a + 5c + 16a + 4d) * 6]

= (20a + 20b + 24c + 2d) : (52a + 15b + 16c + 4d) : (18a + 15b + 12c + d) : (82a + 20c + 4d)

In Garment business,

Initial investment of Mohit, Rohan and Prakash are Rs. 8m, 7m and 5m respectively.

After 6 months, Megha joins the business with initial investment of Rs. 4m

After 1 year,

Investment of Mohit, Rohan, Prakash and Megha are Rs. 3n, Rs. 2n, Rs. 2n and Rs. 3n respectively.

After 1.5 years,

Investment of Mohit, Prakash and Mega are 5k, 3k and 2k respectively.

After 2.5 years,

Mohit withdraw = Rs. K

Rohan withdraw = 25/100 * 2n = Rs. n/2

Megha withdraw = 25/100 * 4m = Rs. m

Prakash withdraw = 1/2 * 2n = Rs. n

Ratio of profit of Mohit, Rohan, Prakash and Megha

= [8m * 12 + (8m + 3n) * 6 + (8m + 3n + 5k) * 12 + (8m + 3n + 5k - k) * 6]

: [7m * 12 + (7m + 2n) * 18 + (7m + 2n - n/2) * 6]

: [5m * 12 + (5m + 2n) * 6 + (5m + 2n + 3k) * 12 + (5m + 2n + 3k - n) * 6]

: [4m * 6 + (4m + 3n) * 6 + (4m + 3n + 2k) * 12 + (4m + 3n + 2k - m) * 6]

= (48m + 12n + 14k) : (42m + 15n/2) : (30m + 7n + 9k) : (19m + 12n + 6k)

Q68 - A

Explanation/Solution:-

From I:

2n = 50/100 * 8m

=> n = 2m ----(1)

8m = 4 * 4a

=> m = 2a ----(2)

From II:

3b = Rs. 6000

=> b = 2000 ----(3)

And, 3 * 2d = 6000

=> d = 1000 ----(4)

From III:

5c = 5m

=> c = m ----(5)

From IV:

4m = 2/3 * 2k

=> m = k/3 ----(6)

And, 5m = 7000 + 3a ---(7)

From V:

5m = 1/3 * 5k

=> m = k/3 ---(8)

And, 7m = 10000 + 4a ---(9)

From statement I, II, III and IV:

By solving equations 1, 2, 3, 4, 5, 6, and 7, we get

a = 1000, m = 2000, c = 2000, n = 4000, k = 6000, b = 2000 and d = 1000

In catering business,

Ratio of profit of Mohit, Sunil, Punit and Shyamaly

= (20a + 20b + 24c + 2d) : (52a + 15b + 16c + 4d) : (18a + 15b + 12c + d) : (82a + 20c + 4d)

= (20000 + 40000 + 48000 + 2000) : (52000 + 30000 + 32000 + 4000) : (18000 + 30000 + 24000 + 1000) : (82000 + 40000 + 4000)

= 110000: 118000: 73000: 126000

= 110: 118: 73: 126

Hence, Mohit's share of profit in catering business = 110/427 * 854000 = Rs. 220000

In Garment business,

Ratio of profit of Mohit, Rohan, Prakash and Megha

= (48m + 12n + 14k) : (42m + 15n/2) : (30m + 7n + 9k) : (19m + 12n + 6k)

= (96000 + 48000 + 84000) : (84000 + 30000) : (60000 + 28000 + 54000) : (38000 + 48000 + 36000)

= 228000: 114000: 142000: 122000

= 228: 114: 142: 122

= 114: 57: 71: 61

Hence, Mohit share of profit in Garment business = 114/303 * 909000 = Rs. 342000

Thus, statement I, II, III, IV are sufficient to answer

From Statement I, II, III and V:

Similarly, from equations (1), (2), (3), (4), (5), (8) and (9), we get

a = 1000, m = 2000, c = 2000, n = 4000, k = 6000, b = 2000 and d = 1000

Thus, from these values we can find the answer.

Thus, statement I, II, III, and V together are sufficient to answer

Therefore, either statement IV or V is redundant to answer the question.

Q69 - B

Explanation/Solution:-

4m = 2n

=> n = 2m -----(1)

And, 3k = 18000

=> k = 6000

18000 = 3/2 * 3n

=> 18000 * 2/9 = n

=> n = 4000

From equation (1), we get

m = 2000

Total investment by Megha = 4m + 3n + 2k - m = 3m + 3n + 2k = 6000 + 12000 + 12000 = Rs. 30000

Total investment by Rohan = 7m + 2n - n/2 = 7m + 3n/2 = 14000 + 6000 = 20000

Therefore, total investment = 30000 + 20000 = Rs. 50000

Q70 - D

Explanation/Solution:-

In catering business,

3b = 60% of 10a

=> 3b = 3/5 * 10a

=> b = 2a ---(1)

And, 10a = 50% of 5c

=> 10a = 1/2 * 5c

=> c = 4a ---(2)

And, 4d = 4000

=> d = 1000 ---(3)

And, 4a = 4000

=> a = 1000 ---(4)

From (1) and (4) we get

b = 2000

And, from (2) and (4), we get

c = 4000

Ratio of profit of Mohit, Sunil, Punit and Shyamaly

= (20a + 20b + 24c + 2d) : (52a + 15b + 16c + 4d) : (18a + 15b + 12c + d) : (82a + 20c + 4d)

= (20000 + 40000 + 96000 + 2000) : (52000 + 30000 + 64000 + 4000) : (18000 + 30000 + 48000 + 1000) : (82000 + 80000 + 4000)

= 158000: 150000: 97000: 166000

= 158: 150: 97: 166

Let total profit x.

For managing business Mohit got = 5x/100

Punit's profit = 95x/100 * 97/571

According to the question,

5x/100 = 95x/100 * 97/571 - 254400

=> 95x/100 * 97/571 - 5x/100 = 254400 * 571

=> 9215x - 2855x = 25440000 * 571

=> 6360x = 25440000 * 571

=> x = 25440000/6360 * 571

=> x = 4000 * 571

=> x = Rs. 2284000

Q71 - A

Explanation/Solution:-

4a = Rs. T ---(1)

And, T = 4d ---(2)

3b = T + 2000 ---(3)

4c = 4T

=> c = T ---(4)

And, 4a - 3a = 1000

=> a = 1000

From (1), we have

T = 4000

Thus, d = 1000

And, from (3) we get

3b = 4000 + 2000

=> b = 2000

Hence, c = 4000

Ratio of profit of Mohit, Sunil, Punit and Shyamaly

= (20a + 20b + 24c + 2d) : (52a + 15b + 16c + 4d) : (18a + 15b + 12c + d) : (82a + 20c + 4d)

= (20000 + 40000 + 96000 + 2000) : (52000 + 30000 + 64000 + 4000) : (18000 + 30000 + 48000 + 1000) : (82000 + 80000 + 4000)

= 158000: 150000: 97000: 166000

= 158: 150: 97: 166

Explanation/Solution:-

Number of 200 MW units in Stage III = 13 - 3 - 5 = 5

Total capacity of 500 units in Stage III = 2000 - 5*200 - 2*250 = 500 MW

Number of 500 MW units in Stage III = 1

The overall capacity of stage II is (60/137) part of the overall capacity of the power plant.

So, The overall capacity of stage I and stage III combined is (1 - 60/137) or (77/137) part of the overall capacity of the power plant

Overall capacity of the power plant = (137/77)*(1850 + 2000) = 6850 MW

Overall capacity of Stage II = 6850 - 1850 - 2000 = 3000 MW

Total capacity of 250 MW units in Stage II = 3000 - 5*200 - 2*500 = 1000 MW

Number of 250 MW units in Stage II = 1000/250 = 4

Let the number of 250 MW units in Stage I be 'x'

Total capacity of 500 MW units in Stage I = 1850 - 3*200 - x*250 = (1250 - 250x) MW

So, Total capacity of 500 MW units in all stages = (8/3)*(250x) = 2000x/3 MW

So, 1250 - 250x + 3*500 = 2000x/3

2750x/3 = 2750

x = 3

Number of 500 MW units in stage I = (1250 - 250*3)/500 = 1

Completing the table:

	Number of 200 MW units	Number of 250 MW units	Number of 500 MW units	Overall capacity
Stage I	3	3	1	1850
Stage II	5	4	2	3000
Stage III	5	2	1	2000
Overall	13	9	4	6850

Q72 - A

Explanation/Solution:-

Required difference = 9 - 4 = 5

Q73 - E

Explanation/Solution:-

For Stage I:

Electricity produced

= 3*200*0.8*4 + 3*200*0.65*4 + 3*200*0.5*8 + 3*250*0.6*4 + 3*250*0.45*8 + 500*0.9*2 + 500*0.8*4 + 500*0.65*4 + 500*0.5*8 = 16180 MWh

Q74 - B

Explanation/Solution:-

For Stage II:

electricity produced = 5*200*0.8*2 + 5*200*0.6*4 + 5*200*0.55*4 + 5*200*0.4*8 + 4*250*0.85*2 + 4*250*0.7*4 + 2*500*0.6*4 + 2*500*0.45*8

= 19900 MWh

If all units were working at 100% efficiency for 10 hours, electricity produced

= 3000*10 = 30000 MWh

Required percentage = (19900/30000)*100% = 66(1/3)%

Q75 - C

Explanation/Solution:-

Let 'y' 200 MW units were shut down.

So, 5*200*0.6*4 + 5*200*0.55*4 + (5 - x)*200*0.4*8 + 2*250*0.7*4 + 2*250*0.6*4 + 2*250*0.45*8 = 10280

640(5 - x) = 1280

5 - x = 2

x = 3

Explanation/Solution:-

Ratio of speed of boat P in still water to speed of stream = 100: 12.5 = 8: 1

105/(8p - p) = 180/60 = 3

p = 5

Ratio of speed of boat Q in still water to speed of stream = 100: 20 = 5: 1

60/(5q - q) = 300/60 = 5

q = 3

Ratio of speed of boat R in still water to speed of stream = 100: 20 = 5: 1

80/(5r - r) = 240/60 = 4

r = 5

Ratio of speed of boat S in still water to speed of stream = 100: 25 = 4: 1

48/(4s - s) = 120/60 = 2

s = 8

Ratio of speed of boat T in still water to speed of stream = 100: 20 = 5: 1

112/(5t - t) = 420/60 = 7

t = 4

Boats	Speed in still water (km/h)	Speed of stream (km/h)	Upstream speed (km/h)	Downstream speed (km/h)
P	8p = 40	p = 5	35	45
Q	5q = 15	q = 3	12	18
R	5r = 25	r = 5	20	30
S	4s = 32	s = 8	24	40

T	5t = 20	t = 4	16	24

Q76 - D

Explanation/Solution:-

Let distance = 'D' km

According to the question:

(D/35) + (D/45) = 3.52

(9D + 7D) = 3.52 * 315

D = 69.3 km

Let changed speed of boat P in still water = 'x' km/h

[69.3/(x + 5)] + [69.3(x - 5)] = 3.52 - (43.2/60) = 2.8

990(x - 5 + x + 5) = 40(x + 5)(x - 5)

$1980x = 40x^2 - 1000$

$40x^2 - 1980x - 1000 = 0$

x = 50

Required per cent change = [(50 - 40)/40] * 100 = 25%

Q77 - E

Explanation/Solution:-

Since, speed of stream for both the boats are same and both the boats are travelling in opposite direction. So, speed of stream will not affect their effective speed.

Effective speed of both the boat when travelling towards each other = 25 + 20 = 45 km/h

Distance between A and B = 45 * (48/60) = 36 km

Time taken by boat R to reach point B when travelling in upstream = 36/(25 - 5) = 1.8 hours

In 1.8 hours, distance travelled by boat T in upstream = 1.8 * (20 - 5) = 27 km

Required distance = 36 - 27 = 9 km

Q78 - A

Explanation/Solution:-

According to the question:

(x/12) + (x/18) = a

5x = 36a

3.75y = 36(b + 1.8) ..... (1) [x: y = 3: 4 and (a - b) = 1.8]

(y/24) + (y/40) = b

y = 15b ..... (2)

From (1) and (2):

3.75 * 15b = 36(b + 1.8)

56.25b = 36b + 64.8

20.25b = 64.8

b = 3.2 and a = 5

Distance travelled by boat S in downstream in (a + b) hours = 40 * (a + b) = 328 km

Explanation/Solution:-

After tabulating the information given in the graphs:

Boats	One-way distance (km)	Difference in speeds (km/h)	Difference in time (minutes)
A	45	20	36
B	80	30	36
C	75	15	50

D	90	30	48
E	60	10	30

Difference between upstream and downstream distance shows the double of the speed of stream. Since upstream and distance covered by any boat is same. So, time taken in upstream will be more then the time taken by downstream.

Speed of stream for boat A = 20/2 = 10 km/h

Speed of stream for boat B = 30/2 = 15 km/h

Speed of stream for boat C = 15/2 = 7.5 km/h

Speed of stream for boat D = 30/2 = 15 km/h

Speed of stream for boat E = 10/2 = 5 km/h

Let speed of boats A, B, C, D and E in still water is 'a', 'b', 'c', 'd' and 'e' respectively.

Now,

Boat A:

[45/(a - 10)] - [45/(a + 10)] = (36/60) = 0.6

(a + 10 - a + 10)/(a - 10)(a + 10) = 1/75

75 * 20 = a^2 - 100

a^2 = 1600

a = 40

Boat B:

[80/(b - 15)] - [80/(b + 15)] = (36/60) = 0.6

(b + 15 - b + 15)/(b - 15)(b + 15) = 1/100

133(1/3) * 30 = b^2 - 225

b^2 = 3225

b = 65

Boat C:

[75/(c - 7.5)] - [75/(c + 7.5)] = (50/60) = (5/6)

(c + 7.5 - c + 7.5)/(c - 7.5)(c + 7.5) = 1/90

90 * 15 = c^2 - 56.25

c^2 = 1406.25

c = 37.5

Boat D:

[90/(d - 15)] - [90/(d + 15)] = (48/60) = 0.8

(d + 15 - d + 15)/(d - 15)(d + 15) = 1/112.5

112.5 * 30 = d^2 - 225

d^2 = 3600

d = 60

Boat E:

[60/(e - 5)] - [60/(e + 5)] = (30/60) = 0.5

(e + 5 - e + 5)/(e - 5)(e + 5) = 1/120

120 * 10 = e^2 - 25

e^2 = 1225

e = 35

Boats	Speed in still water (km/h)	Upstream Speed (km/h)	Downstream Speed (km/h)
A	a = 40	40 - 10 = 30	40 + 10 = 50
B	b = 65	65 - 15 = 50	65 + 15 = 80
C	c = 37.5	37.5 - 7.5 = 30	37.5 + 7.5 = 45

D	d = 60	60 - 15 = 45	60 + 15 = 75
E	e = 35	35 - 5 = 30	35 + 5 = 40

Q79 - B

Explanation/Solution:-

According to the question:

[(D - 20)/50] + [(D + 4)/80] = 1.6

8D - 160 + 5D + 20 = 1.6 * 400 = 640

13D = 780

D = 60

Decreased upstream speed = 68% of 50 = 34 km/h

Decreased downstream speed = 87.5% of 80 = 70 km/h

Changed speed of boat B in still water = (34 + 70)/2 = 52 km/h

Required time taken = (2D - 16)/52 = 2 hours

Q80 - D

Explanation/Solution:-

Total time taken to go 'D' km upstream and come back 'D - 15' km in downstream by boat C = [D/30] + [(D - 15)/45] = (D - 6)/18

Total time taken to go 'D' km upstream and come back 'D - 15' km in downstream by boat C when stream reverses its direction = [D/45] + [(D - 15)/30] = (D - 9)/18

According to the question:

(D - 6)/18: (D - 9)/18 = 23: 22

22D - 132 = 23D - 207

D = 75

Total time by boat C in its journey when the stream is flowing in its original direction = (D - 6)/18 = 3 hours 50 minutes

Q81 - A

Explanation/Solution:-

Let speed of stream = 'x' km/h

45/(35 - x) = 1.8

35 - x = 25

x = 10

Upstream speed of D = 60 - 10 = 50 km/h

Upstream speed of E = 35 - 10 = 25 km/h

Effective speed of D and E when travelling in upstream = 50 - 25 = 25 km/h

According to the question:

t = (80 - 30)/25 = 2 hours

Now,

Time at which distance between then will be again 30 km = (80 + 30)/25 = 4.4 hours

Required time = 4.4 - 2 = 2.4 hours

Q82 - E

Explanation/Solution:-

According to the question:

[X/50] + [(X - 12)/80] = [(X - 15)/45] + [X/75]

72X + 45X - 540 = 80X - 1200 + 48X

11X = 660

X = 60

Now,

[X/50] + [(X - 12)/80] = t

(60/50) + (48/80) = t

t = 1.2 + 0.6

t = 1.8 hours

Upstream distance travelled by boat C in 't - 0.3' hours = (1.8 - 0.3) * 30 = 45 km

Required per cent = (45/60) * 100 = 75%

Explanation/Solution:-

Total expenditures of A = 80% of 45000 = 36000

Total expenditures of B = 80% of 40000 = 32000

Total expenditures of C = 80% of 36000 = 28800

Total expenditures of D = 80% of 50000 = 40000

Total expenditures of E = 80% of 32000 = 25600

For the person A,

8640 = 24% of 36000

The expenditures on Travelling and Petrol together = 100 - 24 - 18 = 58%

The expenditures on travelling = 58*16/29 = 32%

The expenditures on Petrol = 38*13/29 = 26%

For person B,

10240 = 32% of 32000

The expenditures on travelling = 100 - 32 - 16 - 28 = 24%

For person C,

10368 = 36% of 28800

Expenditures on Food = 100 - 24 - 36 - 32 = 8%

For person D,

Person D spends 50% more on food compare to that on Petrol

Therefore, the ratio of the expenditures on Food to that on Petrol = 3: 2

7200 = 18% of 4000

The expenditures on Food and petrol together = 100 - 18 - 22 = 60%

Expenditures on Food = 3*60/5 = 36%

Expenditures on Petrol = 2*60/5 = 24%

For the person E,

Expenditures on Food = 24% of 25600 = 6144

The expenditures on Travelling and others together = 25600 - 6144 - 3072 = 16384 ---- (i)

The difference between the expenditures on Travelling and others = 1024 ---- (ii)

By solving, expenditures on Travelling = (16384 + 1024)/2 = 8704

Expenditures on others = 8704 - 1024 = 7680

	Food	Travelling	Petrol	Others
A	18% of 36000 = Rs. 6480	32% of 36000 = Rs. 11520	26% of 36000 = Rs. 9360	Rs. 8640
B	Rs. 10240	24% of 32000 = Rs. 7680	16% of 32000 = Rs. 5120	28% of 32000 = Rs. 8960
C	8% of 28800 = Rs. 2304	24% of 28800 = Rs. 6912	Rs. 10368	32% of 28800 = Rs. 9216

D	36% of 40000 = Rs. 14400	Rs. 7200	24% of 40000 = Rs. 9600	22% of 40000 = Rs. 8800
E	24% of 25600 = Rs. 6144	Rs. 8704	Rs. 3072	Rs. 7680

Q83 - A

Explanation/Solution:-

The required difference = 11520 - 9360 = Rs. 2160

Q84 - B

Explanation/Solution:-

The required sum = 6480 + 10240 + 2304 + 14400 + 6144 = Rs. 39568

Q85 - B

Explanation/Solution:-

The expenditures of B and C together on Food = 10240 + 2304 = Rs. 12544

The expenditures of D and E together on Travelling = 7200 + 8704 = Rs. 15904

The required difference = 15904 - 12544 = Rs. 3360

Explanation/Solution:-

Selling price of item A = 12000 * (72/360) = Rs.2400

Cost price of item A = 2400 * (100/120) = Rs.2000

Marked price of item A = 135% of 2000 = Rs.2700

Selling price of item B = 12000 * (48/360) = Rs.1600

Cost price of item B = 1600 * (100/125) = Rs.1280

Marked price of item B = 150% of 1280 = Rs.1920

Selling price of item C = 12000 * (96/360) = Rs.3200

Cost price of item C = 3200 * (100/128) = Rs.2500

Marked price of item C = 140% of 2500 = Rs.3000

Selling price of item D = 12000 * (90/360) = Rs.3000

Cost price of item D = 3000 * (100/120) = Rs.2500

Marked price of item D = 130% of 2500 = Rs.3250

Selling price of item E = 12000 * (54/360) = Rs.1800

Cost price of item E = 1800 * (100/144) = Rs.1250

Marked price of item E = 160% of 1250 = Rs.2000

Items	Selling price	Cost price	Marked price
A	2400	2000	2700
B	1600	1280	1920
C	3200	2500	3500
D	3000	2500	3250
E	1800	1250	2000

Q86 - D

Explanation/Solution:-

Item C:

Actual marked up per cent = 40% [Given]

Actual discount per cent = (300/3500) * 100 = (60/7) = 8(4/7)%

New, marked price = 108(4/7)% of 2500 = Rs.(19000/7)

New, selling price = 60% of (19000/7) = Rs.(11400/7)

Required per cent = [(11400/7)/2500] * 100 = 65%

Q87 - A

Explanation/Solution:-

Item D:

Total selling price of both the items together = 124% of 5000 = Rs.6200

Selling price of second unit = 6200 - 3000 = Rs.3200

Let marked up and discount per cent is '3x'% and 'x'% respectively.

Marked price of second unit = (100 + 3x)% of 2500 = 25(100 + 3x)

Selling price of second unit = (100 - x)% of 25(100 + 3x) = 3200

[(100 - x)(100 + 3x)]/4 = 3200

$10000 + 200x - 3x^2 = 12800$

$3x^2 - 200x + 2800 = 0$

x = 20

Marked price of second unit = 25(100 + 3x) = Rs.4000

Required per cent = (3250/4000) * 100 = 81.25%

Q88 - D

Explanation/Solution:-

Let cost price of item F = 'x'

Total selling price of both the item together = 122% of (1250 + x) = (1.22x + 1525)

Selling price of item F = (1.22x + 1525) - 1800 = (1.22x - 275)

Marked price of item F = 140% of x = 1.4x

Selling price of item F = 80% of 1.4x = 1.12x = 1.22x - 275

0.1x = 275

x = 2750

Cost price of item F = x = Rs.2750

Marked price of item F = 1.4x = Rs.3850

Selling price of item F = 1.12x = Rs.3080

Total profit amount earned after selling both the items = (1800 + 3080) - (1250 + 2750) = Rs.880

Total marked up amount of both the items together = (2000 + 3850) - (1250 + 2750) = Rs.1850

Required ratio = 880: 1850 = 88: 185

Explanation/Solution:-

Q89 - C

Explanation/Solution:-

Amount of Ramesh after 10 years = (P x r x t)/100 + P

= (65000 x 10 x 10)/100 + 65000

= 65000 + 65000

= Rs.130000

Amount of Suresh after 3 years = $P \times (1 + r/100)^t$

= $80000 \times (1 + 8/100)^3$

= 80000 x 108/100 x 108/100 x 108/100

= Rs.100776.96

Required difference = 130000 - 100776.96 = Rs.29223.04

Q90 - D

Explanation/Solution:-

SI for Dinesh after 8 years = (P x r x t)/100

= (75000 x 12 x 8)/100

= Rs.72000

SI for Naresh after 5 years = (P x r x t)/100

= (90000 x 8 x 5)/100

= Rs.36000

Required ratio = 72000 : 36000 = 2:1

Q91 - D

Explanation/Solution:-

Interest earned by Prakash on CI = P x [(1 + r/100)^t - 1]

= 2/3 x 60000 x [(1 + 6/100)^2 - 1]

= 40000 x 106/100 x 106/100 - 40000

= 44944 - 40000

= Rs.4944

Interest earned by Prakash on SI = (P x r x t)/100

= (1/3 x 60000 x 6 x 5)/100

= Rs.6000

Total interest earned by him = 4944 + 6000 = Rs.10944

Explanation/Solution:-

Q92 - B

Explanation/Solution:-

Per work done by Satish =1/16

Per hour work done by Abhishek = 1/20

Per hour work done by Vinay =1/40

Per hour work done by Abhishek and Satish together = (1/16) + (1/20) = (5 +4)/ (80) =9/80

Let Satish and Abhishek worked for 'n' hours

Work done by Satish and Abhishek =(9n)/80

Per hour work done by Abhishek, Vinay and Satish together = (1/16) + (1/20) + (1/40)

= (5+ 4 + 2)/ (80) = (11/80)

Satish, Vinay and Abhishek worked for (n-3) hours

Work done by Satish, Vinay and Abhishek = (11 x(n-3))/ (80)

Work done by Vinay and Abhishek = (1/20) +(1/40) = (6/80)

Abhishek and Vinay worked for =2(1/6) =13/6 hours.

Work done by Vinay and Abhishek = (13/6) x (6/80) =13/80

(9n/80) +((11(n-3))/80) + (13/80) =1

9n + 11 x (n-3) + 13 =80

9n +11n -33 +13 =80

20n =100

n = 5 hours

Total number of hours =5 +2 +(13 /6) = 7 + (13/6) = 9(1/6) hrs.

Q93 - E

Explanation/Solution:-

Percentage of work completed by Satish in 2 hours = 2 x (1/16) x 100% =12.5%

Percentage of work completed by Vinay in 2 hours = 2 x (1/40) x 100% = 5%

Percentage of work completed by Nikita in 3.5 hours = 3.5 x (1/35) x 100% = 10%

Percentage of work completed by Shruti in 4.5 hours = 4.5 x (1/36) x 100% = 12.5%

Percentage of work completed by Neha in 5.5 hours = 5.5 x (1/55) x 100% = 10%

Required percentage = (12.5% + 5% + 10% + 12.5% +10%) = 50%.

Q94 - D

Explanation/Solution:-

Work done by Vinay in 2 hours = 2 x (1/40) =1/20

Work done by Nikita in 7 hours = 7 x (1/35) =1/5

Work done by Neha in 16.5 hours = 16.5 x (1/55) =3/10

Work done by Vinay, Nikita and Neha = (1/20) + (1/5) + (3/10)

= (11/20)

Work done by Abhishek, Shruti and Satish in one hour = (1/20) + (1/36) + (1/16)

= (36 + 20 + 45)/ (720)

= 101/720

Work done in 216 minutes =3.6 x(101/720) =101/200

We have (11/20) = 253

Then (101/200) =?

=> ? = ((253) x (101/200))/ (11/20)

=> ? = 232.3

Explanation/Solution:-

Let the length of train B is 'x' meters.

According to the question:

(250 + x) = (A + 30) * 19.2 * (5/18)

(250 + x) = 16(A + 30)/3

(16A/3) - x = 90 ..... (1)

Now,

(x + x) = 30 * 36 * (5/18)

x = 150 meters

From equation (1):

(16A/3) - 150 = 90

A = 45 km/h

Let the running speed of Ramesh = 'y' km/h

Effective speed of Ramesh to cross the platform = (45 + y)

Now,

150 = (45 + y) * 10.8 * (5/18)

50 = 45 + y

y = 5 km/h

Time taken by Ramesh to finish the race = (400/5) * (1/1000) = 0.08 hours

Distance covered by Mahesh in 0.08 hours = (0.08 * 4) = 320 meters

Distance by which Ramesh beat Mahesh in the race = B = 400 - 320 - 50

B = 30 meters

Cost price of cycle = C% of 25000 = 250C

Amount invested in scheme = (25000 - 250C)

Total worth of cycle after 2 years = (90% of 90% of 250C) = 202.5C

Total amount from the scheme after 2 years = (25000 - 250C) + [{(25000 - 250C) * 20 * 2}/100] = (25000 - 250C) + (10000 - 100C) = (35000 - 350C)

According to the question:

202.5C + (35000 - 350C) = 25000 + 4100

5900 = 147.5C

C = 40

Amount invested in scheme = (25000 - 250C) = Rs.15000

Amount of interest after 2 years = (15000 * 20 * 2)/100 = Rs.6000

Investment of Ramesh = Rs.6000

Investment of Mahesh = 6000 + 1200 = Rs.7200

Total profit weightage of Ramesh = (6000 * 5) + (5000 * 7) = 65000

Total profit weightage of Mahesh = (7200 * 5) + (6000 * 7) = 78000

Ratio of their profit = 65000: 78000 = 5: 6

profit amount of Mahesh = D = 1320 * (6/11)

D = Rs.720

Probability that he hit the target in an attempt = (1/5)

Probability that he will win the game = Probability of hitting the target in first attempt + Probability of hitting the target in second attempt + Probability of hitting the target in third attempt

E = (1/5) + [(4/5) * (1/5)] + [(4/5) * (4/5) * (1/5)]

E = (1/5) + (4/25) + (16/125)

E = 61/125

Running speed of Mahesh = 4 km/h

Distance between his home from the village fair = F = 4 * (45/60)

F = 3 km

Q95 - D

Explanation/Solution:-

A = 45 km/h

Q96 - B

Explanation/Solution:-

B = 30 meters

Q97 - D

Explanation/Solution:-

C = 40%

Q98 - A

Explanation/Solution:-

D = Rs.720

Q99 - C

Explanation/Solution:-

E = 61/125

Q100 - E

Explanation/Solution:-

F = 3 km

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