

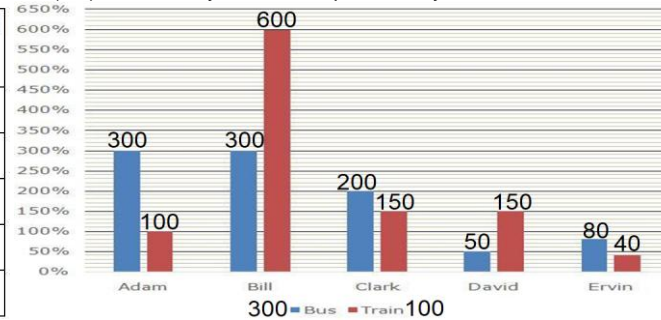
DI Test 3

SET 1. Study the following information carefully and answer the given questions.

There are five persons Adam, Bill, Clark, David and Ervin that are travelling from their home to office by three vehicles Car, Bus and Train together.

The table given below shows the distance (km) travelled by all the five persons by Car.

Person	Distance (km) travelled by Car
Adam	15
Bill	5
Clark	10
David	20
Ervin	25



The bar graph given below shows the distance travelled by those five persons by Bus and Train respectively as a percentage of distance travelled by Car.

Note: It is not necessary that distance between their home and office is the sum of distance travelled by all the three vehicles together. They may take another vehicle or travel by foot to reach the office.

1. If the ratio of speed of car, bus and train for Adam is 3: 2: 2 respectively and the difference between time taken to reach office from home travel all the distance by car and time taken when taking all the three vehicles is 30 minutes, then what is the speed of train for Adam? He didn't opt for any other vehicle neither he walked. 1.30 km/h 2.40 km/h 3.50 km/h 4.60 km/h 5.None

2. Bill started from his house by car for 6 minutes and then walked for 'x' km. After that he takes the train and then the bus to reach his office. Total time of his travelling is 3 hours and the speed of the bus and train are 20 km and 35 km less than the speed of the car respectively and his walking speed is 15 km/h, then what is the value of 'x'? 1.6 km 2.8 km 3.12 km 4.15 km 5.None

3. If Clark goes to the office for home by these three vehicles only and travels for 12 minutes by car. Ratio of speed of car, bus and train for Clark is 5: 4: 6 respectively. He takes rest for a while and completes his journey in 1 hour, then for how long he takes rest? 1.6 minutes 2.12 minutes 3.8 minutes 4.3 minutes 5.None of these

4. David first took a car then bus and then train and to reach office he walked with speed for 36 minutes and distance travelled by walking is 20% of total distance from home to office. Ratio of walking speed of David to speed of car is 5: 8, then for how long David travelled by car? 1.30 minutes 2.45 minutes 3.15 minutes 4.25 minutes 5.None of these

5. It is given that Ervin covers the distance between his office and home with these three vehicles only and the ratio of speed of car, bus and train is 8: 10: 5. If the speed of the car is increased by 25% while the speed of bus and train is decreased by 20%, then the total time taken to cover the distance between home and office by Ervin is increased by 4.5 minutes, then what is the original speed of Bus for Ervin? 1.60 km/h 2.40 km/h 3.50 km/h 4.30 km/h 5.None of these

SET 2. Study the following information carefully and answer the questions.

In a class there are 2 sections, section A and section B, All the students of section A and section B take part in an examination. The number of students in section B is 3 times the number of students in section A, in the exam the number of questions attempt by each students of section A is equal to the number of students in section A, and the number of questions attempted by each students of section B is equal to the total number of students in section B, 50% of total question attempted by all the students of section A is correct and rest are incorrect, and 70% of all the question attempted by the students of section B is correct and the rest are incorrect, each correct question carry 3 marks, and for each incorrect question 1 mark will be deducted. After the exam it is seen that the difference between the marks scored by all the students in section A and section B is 220.

6. If the mark for correct answer is +4 and for the wrong answer is -2, then find the difference between the total students of both the sections. 1.40 2.50 3.80 4.70 5.60

7. If 60% of total questions attempted by all the students in section A give correct answers and 40% of total question attempted by section B give correct questions, find the difference between the average marks of all the students in section A and section B. 1.30 2.20 3.10 4.40 5.60

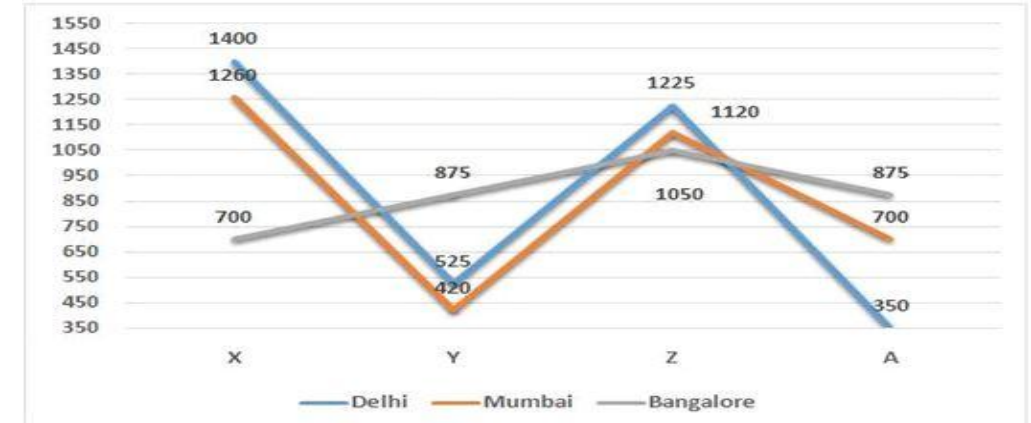
8. Find the ratio of the total number of marks obtained by section A to section B.

1.5:81 2.6:52 3.7:63 4.4:31 5.9:82

9. If the difference between the marks of all the students together in section A and section B is 264, then find the number of students in section A. 1.120 2.160 3.150 4.140 5.60

SET 3. Read the following information carefully and answer the questions based on it.

An energy Drink Manufacturing company manufactures energy drinks of three flavours: Cola, Strawberry and Orange. The company surveyed a sample of 3500 people in each of three cities – Delhi, Mumbai and Bangalore. In the survey all participants were asked to select one of the four options – X, Y, Z and A. Out of these four options, one option indicated that the participant did not like any of the three flavours, while each of the remaining three options indicated the one flavour liked by the Participant. No participant liked more than one flavour. The following Line graph shows the number of participants in these areas who indicated the responses X, Y, Z and A.



In all three given areas combined, the number of participants who like Strawberry flavour was at least 1470 more than those who liked orange flavour. In Bangalore, one – fourth of participants did not like any of the three flavours.

10. If the number of participants who liked Orange flavour in Mumbai was lower than the number of participants who liked Orange flavour in either of the other two cities, then find which of the following statement(s) is/are definitely true.

I). Number of participants those who liked cola flavour was higher in Delhi than other two cities.

II). Number of participants who did not like any of the flavour in Bangalore was higher than the other two cities. III). Number of participants who liked orange flavour in Bangalore is 25% more than the number of participants who liked Cola in the same city. IV). Total number of participants who liked Cola should be higher than either those who liked Orange flavour or Number of participants who did not like any of the flavour. 1.Only I, II are True 2.Only I, II and III are True 3.Only III and IV are True 4.Only I and IV are True 5.None of these

11. In Mumbai, if the number of participants who liked cola flavour is higher than the number of participants those who liked strawberry flavour or Orange flavour or those did not like any flavour, then which of the following given statement(s) is/are definitely false.

I). in Bangalore, the number of participants liked strawberry flavour is lesser than number of participants voted for Cola or Orange or none of the flavour. II). One – fifth of the participants in Mumbai were those who did not like any of the flavour. III). Number of participants in Delhi who liked Strawberry flavour is not more than 0.35 times the total number of participants in Delhi.

1.Only I and II are False 2.Only II and III are False 3.Only III is False 4.Only I is False 5.None of these

12. Out of the three flavours of energy drink, only those flavours which were selected by at least 32% of the participants in at least two of the three given cities were simultaneously selected for production PAN India. Which of the following flavour(s) could have been selected for production PAN India.

1.Only Cola 2.Both Strawberry and Orange 3.Both Cola and Strawberry

4.Both Cola and Orange 5.None of the above given pair

13. A maximum of how many statements are simultaneously true?

I). In Delhi, 1400 participants liked Strawberry flavour. II). In Mumbai, 1120 participants liked Cola flavour

III). In Delhi, 350 participants liked orange flavour. IV). In Bangalore, 30% participants like cola flavour.

1.1 2.2 3.3 4.4 5.0

SET 4. Study the following information carefully and answer the given questions.

The given below table shows the Quantity of five mixtures – I, J, K, L and M containing wine and water. Some values are missing in the table and to find out required values, information is given in the following passage. In each mixture quantity of wine is more than the quantity of water.

Mixture	Total quantity (in liters)	Wine (in liters)	Water (in liters)	CP of wine per liter (in Rs)	SP of mixture per liter (in Rs)
I	-	-	36	-	50
J	81	-	-	60	-
K	-	48	-	25	-
L	-	-	55	-	40
M	96	-	-	50	-

Note:- Quantity of water in the mixture J is 50% of the quantity of wine in the same mixture and SP of mixture J is 'x' percentage above the CP of mixture J which is same as percentage of mixture I. The ratio between quantity of wine to that of water in mixture L is 6:5 and CP of wine in mixture L is 75% of SP of mixture L. The ratio between the quantity of wine to that of water in mixture I is 16:9 and SP of mixture I is 25% above the CP of wine in mixture I. Quantity of wine in mixture K is 200% above the quantity of water in same mixture and the SP of mixture M is 40% above the CP of wine in the mixture M. SP of mixture K is 20% above the CP of wine in mixture K and difference between the quantity of wine and water in the mixture M is 24 liters.

14. Find the ratio of overall profit earned on mixture J&K together to that of mixture L & M together.

1.932:679 2.234:671 3.1321:345 4.711:1316 5.1976:345

15. 25% of the mixture I is taken out and replaced with water. Again 25% of the mixture is taken out and replaced with water. Then find out the percentage of quantity of wine in the final mixture?

1.64% 2.39% 3.36% 4.52% 5.60%

16. What is the sum of the average quantity of wine in mixture K, L & M together and the average quantity of water in mixture I, J & M together?

1.75 2.25 3.43 4.91 5.81

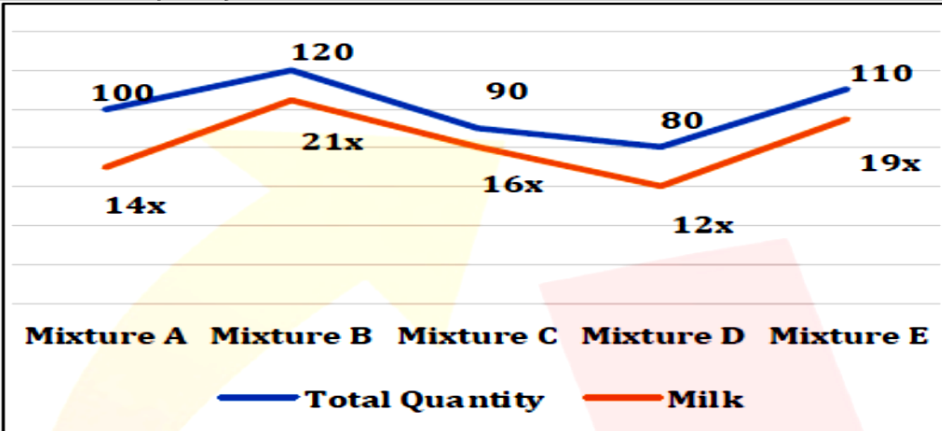
17. If 50% of mixture K and 33.33% of mixture J is taken out and poured into another container.

find the ratio between wine and water in the new mixture? 1.7:3 2.2:47 3.6:1 4.42:7 5.None

18. Percentage of wine out of total quantity of mixture L is approximately how much more/less than the percentage of quantity of water out of total quantity of mixture M?

1.25% 2.12% 3.17% 4.21% 5.10%

SET 5:- There are a total of five mixtures A, B, C, D, and E of milk and water. The line graph given below shows the total quantity of mixture (litre) and total quantity of milk (litre) in those five mixtures. The quantity of water in mixture A is 30 litres.



19. Mixture A and E are mixed in the ratio of 3 : 2 and an extra 20 litres of water is added to this mixture to form a new mixture F. Now, this final mixture is sold at 90% of the cost price of pure milk. If the total amount of profit earned is Rs. 600 which is 25% in terms of profit, then what will be cost price of 2526 litres of pure milk?

(A) Rs. 25000 (B) Rs. 15000 (C) Rs. 20000 (D) Rs. 12500 (E) None of these

20. In what ratio mixtures B and C should be mixed to form mixture F, If after adding 47.5 litres more water to this mixture F, forms mixture P. The ratio of milk to water becomes 763 : 120 when the total amount of mixture P after adding 47.5 litres of water becomes 2207.5 litres?

(A) 5 : 9 (B) 2 : 3 (C) 2 : 5 (D) 5 : 7 (E) None of these

21. Mixtures C and D are mixed in the ratio 3 : 2 and a new mixture N gets formed. When in mixture N, 15 litres of milk and 15 litres water is added, the pure milk becomes 80% of the total mixture.

Now, 60 litres of this mixture N is replaced with the same amount of water and this process is repeated one more time, then what will be the amount of pure milk in the mixture after this process? (A) 153.6 litres (B) 146.5 litres (C) 165.8 litres (D) 170.4 litres (D) None of these

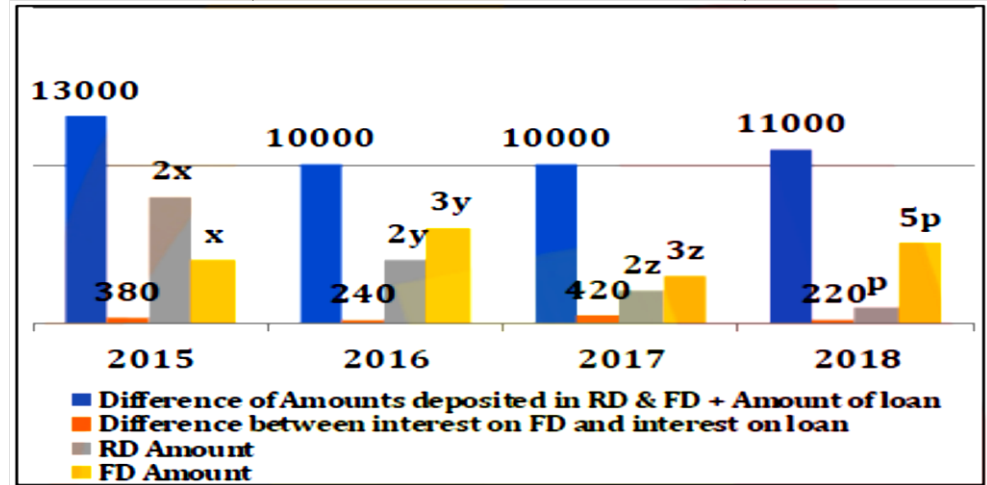
22. A shopkeeper blends two kinds of mixtures of prices Rs. 50 per litre and Rs. 60 per litre in the ratio of 3 : 5. If the ratio of two types of mixtures gets changed to 5 : 3. How much will the shopkeeper save in blending 4 litres? (A) Rs. 20 (B) Rs. 15 (C) Rs. 10 (D) Rs. 25 (E) None

23. If x liters of A is mixed with y liters of B, then the ratio of milk and water in the mixture becomes 49 : 15. If x litres of A and y litres of B is mixed with mixture C then what percent of water is present in final mixture C, if $x + y = 8$.

(A) 650/49% (B) 965/47% (C) 825/41% (D) 945/47% (E) None of these

SET 6:- Read the data carefully and answer the following questions.

A bank accepts deposits in two forms (RD and FD) and it provides loan. Interest rate given on RD and FD is 5% and 4% respectively and interest charged on loan amount is 6%. Interest is calculated every year and rate of interest is given on yearly basis. How interest amount is calculated : On the sum of Rs. 500 in RD deposit, interest amount for 1 year = 5% of 500 = Rs. 25 and so on. Bar graph given below shows : (1) The sum of difference between amounts deposited in RD & FD and amount of loan given by Bank in 4 different years. (2) Amount deposited in RD and FD in 4 different years. (3) Difference between interest on FD and interest on loan (Interest on loan amount > Interest on FD amount)



24. If loss of the Bank in any particular year is the amount that it loses after giving interest amount on deposits and taking interest on Loan, then what is the total loss of Bank in 2015?

(A) Rs. 20 (B) Rs. 40 (C) Rs. 50 (D) Rs. 15 (E) None of these

25. What is the ratio of total interest amount given by Bank on both types of deposited amount to the total interest amount received by Bank on Loans in all the 4 years together?

(A) 50 : 67 (B) 49 : 66 (C) 80 : 57 (D) 35 : 71 (D) None of these

26. What is the difference between average deposited amount on RD in Bank in all 4 years to the average amount of loan given by Bank in all 4 years together?

(A) 3100 (B) 4000 (C) 4500 (D) 2800 (E) None of these

27. If in 2019, total profit amount gained by Bank is Rs. 140 and amount deposited in FD is half of the loan amount given. If total amount deposited in RD is Rs. 2000, then what is the interest amount given by Bank on total deposits on FD?

(A) 100 (B) 120 (C) 110 (D) 140 (D) None of these

28. What is the average profit earned by the bank from 2015 to 2018?

(A) 117.5 (B) 127.5 (C) 147.5 (D) 137.5 (E) None of these

{1 – 5}

Solution

Persons	Distance (km) travelled by Car	Distance (km) travelled by Bus	Distance (km) travelled by Train
Adam	15	300% of 15 = 45	100% of 15 = 15
Bill	5	300% of 5 = 15	600% of 5 = 30
Clark	10	200% of 10 = 20	150% of 10 = 15
David	20	50% of 20 = 10	150% of 20 = 30
Ervin	25	80% of 25 = 20	40% of 25 = 10

1. Answer: B

For Adam:

Let the speed of car, bus and train be '3x', '2x' and '2x' respectively.

Time taken to reach office from home when travel by car only = $(15 + 45 + 15)/3x = (25/x)$

Time taken to reach office from home when opt all the three vehicles = $(15/3x) + (45/2x) + (15/2x) = (35/x)$

According to the question:

$$(35/x) - (25/x) = (30/60)$$

$$10/x = 0.5$$

$$x = 20$$

Speed of train for Adam = $2x = 40$ km/h

2. Answer: A

For Bill:

Speed of car = $(5/6) * 60 = 50$ km/h

Speed of bus = $50 - 20 = 30$ km/h

Speed of train = $50 - 35 = 15$ km/h

Total time for which Bill travel with car, bus and train = $(6/60) + (15/30) + (30/15) = 2.6$ hours

Time for which he walked = $3 - 2.6 = 0.4$ hours

According to the question:

$$x = 0.4 * 15$$

$$x = 6 \text{ km}$$

3. Answer: D

For Clark:

Speed of car = $(10/12) * 60 = 50$ km/h

Speed of bus = $50 * (4/5) = 40$ km/h

Speed of train = $50 * (6/5) = 60$ km/h

Total time of travelling = $(12/60) + (20/40) + (15/60) = 0.95$ hours

Time for which he takes rest = $1 - 0.95 = 0.05$ hours = 3 minutes

4. Answer: A

For David:

Let walking distance = 'd' km

According to the question:

$$d = 20\% \text{ of } (20 + 10 + 30 + d)$$

$$d = 12 + 0.2d$$

$$0.8d = 12$$

$$d = 15$$

Walking speed of David = $(15/36) * 60 = 25$ km/h

Speed of car = $25 * (8/5) = 40$ km/h

Time for which David travelled by car = $(20/40) * 60 = 30$ minutes

5. Answer: C

For Ervin:

Let the original speed of car, bus and train be '8x', '10x' and '5x' respectively.

Changed speed of car = 125% of 8x = 10x

Changed speed of bus = 80% of 10x = 8x

Changed speed of train = 80% of 5x = 4x

Original time taken to cover the distance between home and office = $(25/8x) + (20/10x) + (10/5x) = (7.125/x)$

Time taken to cover the distance between home and office with changed speed = $(25/10x) + (20/8x) + (10/4x) = (7.5/x)$

According to the question:

$$(7.5/x) - (7.125/x) = (4.5/60)$$

$$(0.375/x) = 4.5/60$$

$$x = 5$$

Original speed of Bus for Ervin = $10x = 50$ km

{6 – 9}

Solution

Let the number of students in section A=x

So the number of students in section B= 3x

In section A, each students attempt x number of question

And out of these 50% are correct= 0.5x questions are correct by each students

And rest 0.5x are in correct by each students

In section B, each students attempt 3x number of question

Out of which 70% are correct so 70% of 3x=2.1x correct by each students

And the rest 30% is incorrect=0.9x is incorrect by each students of section B

Correct question carry 3 marks

And for incorrect carry -1 marks

So marks of all students in A section get = $0.5x*3+0.5x*(-1)$

And

marks of all students in section B get = $2.1x*3+0.9x*(-1)$

According to the question

$$[2.1x*3+0.9x*(-1)] - [0.5x*3+0.5x*(-1)] = 220$$

$$[6.3x-0.9x] - [1.5x-0.5x] = 220$$

$$\Rightarrow 5.4x - x = 220$$

$$\Rightarrow 4.4x = 220$$

$$x = 220/4.4$$

$$x = 50$$

Number of students in section A= 50

And section B= $3 * 50 = 150$

The number of students in section B= 150

6. Answer: C

According to the question,

correct question= +4

And incorrect question=-2

So
 $[2.1x^4 + 0.9x^*(-2)] - [0.5x^4 + 0.5x^*(-2)] = 220$
 $8.4x - 1.8x - 2x + x = 220$
 $5.6x = 220$
 $x = 220/5.6$
 $x = 39.28 = 40$ (Approximately)
 The Number of students in section B = 120
 The number of students in section A = 40
 So the difference = $120 - 40 = 80$

7. Answer: B

In section A 60% of all the question correct
 In section B 40% of all the question correct
 Number of students in section A = 50 and the number of students in section B = $3x = 150$
 In section B each students attempt $3x$ number of question
 40% correct
 So $1.2x$ correct and $1.8x$ incorrect
 In section A each students attempt x number of question
 60% of all question correct
 So $0.6x$ correct and $0.4x$ incorrect
 The required difference
 $= [1.2 * 50 * 3 + 1.8 * 50 * (-1)] - [0.6 * 50 * 3 + 0.4 * 50 * (-1)]$
 $= [60 * 3 + 90 * (-1)] - [30 * 3 + 20 * (-1)]$
 $= [180 - 90] - [90 - 20]$
 $= 90 - 70$
 $= 20$

8. Answer: A

Total number obtain in section A = $x * [0.5x^3 + 0.5x^*(-1)]$
 $= 50 * [0.5 * 50^3 + 0.5 * 50 * (-1)]$
 $= 50 * [75 - 25] = 50 * [50] = 2500$
 Total number obtain in section B = $3x * [2.1x^3 + 0.9x^*(-1)]$
 $= 3 * 50 * [2.1 * 50^3 + 0.9 * 50 * (-1)]$
 $= 3 * 50 * [105 * 3 + 45 * (-1)]$
 $= 3 * 50 * [315 - 45]$
 $= 3 * 50 * 270$
 $= 40500$
 So the required ratio = $2500 : 40500$
 $= 5 : 81$

9. Answer: E

According to the question
 $[2.1x^3 + 0.9x^*(-1)] - [0.5x^3 + 0.5x^*(-1)] = 264$
 $[6.3x - 0.9x] - [1.5x - 0.5x] = 264$
 $= > 5.4x - x = 264$
 $= > 4.4x = 264$
 $x = 264/4.4$
 $x = 60$

Students in section A = 60

{10 – 13}

Solution

According to the question,
 First tabulate the data for further convenience

City	X	Y	Z	A	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

We know that, In Bangalore, one – fourth of participants did not like any of the three flavours.

So, In Bangalore = $1/4 * 3500 = 875$

In Bangalore option Y or A have 875, that means option Y or option A, means did not like any of the flavour.

In all three given areas combined, the number of participants who liked Strawberry flavour was at least 1470 more than those who liked Orange flavour. So check the pairs.

$X - Y = 3360 - 1820 = 1540$ (possible)

$X - A = 3360 - 1925 = 1435$ (Not possible)

$Z - Y = 3395 - 1820 = 1575$ (possible)

$Z - A = 3395 - 1925 = 1470$ (possible)

Now we have possibilities. To check each case which satisfies the given conditions.

If, Option A indicates participants did not like any of the given flavour, then we have, $X - Y = 1540$ and $Z - Y = 1575$.

X = Strawberry, Y = Orange, Z = Cola, A = None (Case 1)

X = Cola, Y = Orange, Z = Strawberry, A = none (Case 2)

If option Y indicates participants did not like any flavour, then we have $Z - A = 1470$.

X = Cola, Y = None, Z = Strawberry, A = Orange (Case 3)

Case 1.

City	Strawberry	Orange	Cola	None	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

Case 2.

City	Cola	Orange	Strawberry	None	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

Case 3.

City	Cola	None	Strawberry	Orange	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

10. Answer: E

According to Question,

If the number of participants who liked Orange flavour in Mumbai was lower than number of participants who liked Orange flavour in either of the other two cities, then we have case 1 and Case 2

Statement I,

Number of Participants liked Cola flavour in Delhi = 1225/1400

Number of Participants liked Cola flavour in Mumbai = 1120/1260

Number of Participants liked Cola Flavour in Bangalore = 1050/700

So, 1225 > both 1120 and 1050 and also 1400 > both 1260 and 700.

This statement is definitely true.

Statement II,

Number of Participants those did not like any of the flavour in Bangalore = 875

Number of Participants those did not like any of the flavour in Mumbai = 700

Number of Participants those did not like any of the flavour in Delhi = 350

This statement is definitely true.

Statement III,

Number of Participants those liked Orange flavour in Bangalore = 875

Number of Participants those liked Cola Flavour in Bangalore = 700 or 1050

875 < 1050, so this statement is not definitely true.

Statement IV,

Number of participants those like Cola Flavour = 3395 or 3360

Number of participants those like orange flavour = 1820

Number of participants those like none = 1925

So, 3395 > 1820 and 1925

This statement is definitely true

Statement I, II and IV are definitely true.

11. Answer: A

In Mumbai, if the number of participants who liked cola flavour is higher than the number of participants who liked strawberry flavour or Orange flavour or those who did not like any flavour, then we have Case 2 and Case 3.

Case 2.

City	Cola	Orange	Strawberry	None	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

Case 3.

City	Cola	None	Strawberry	Orange	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

Statement I. Number of participants those who liked Strawberry flavour in Bangalore = 1050

Number of participants who liked Cola, orange and none in Bangalore = 700, 875, 875. This statement is definitely false.

Statement II. Number of participants in Mumbai those did not like any of the flavour = 420 or 700

So required % = 700/3500 = 20% or 420/700 = 12%

This statement is partially false.

Statement III. Number of Participants those liked strawberry flavour in Delhi = 1225

Required factor = 1225/3500 = 0.35

This statement is definitely true.

12. Answer: C

32% of total participants in a city = 32% of 3500 = 1120

In any of the case Orange don't have number which is greater or equal 1120

Number of participants who likes Cola flavour in three cities = 1225, 1120, 1050 or 1400, 1260, 700. (More than 32% in at least two cities)

Number of participants who likes strawberry flavour in three cities = 1400, 1260, 700 or 1225, 1120, 1050. (More than 32% in at least two cities)

Both Cola and Strawberry.

13. Answer: C

We have checked all the cases, and found in which particular case the maximum number of statements are true.

Case 1.

City	Strawberry	Orange	Cola	None	Total
Delhi	1400	525	1225	350	3500
Mumbai	1260	420	1120	700	3500
Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

Case 2.

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Bangalore	700	875	1050	875	3500
Total	3360	1820	3395	1925	10500

Statement I. True according to case 1

Statement II. True according to case 1

Statement III. True according to case 3

Statement IV. True according to case 1

There are a maximum of 3 statements that are true according to case 1.

{14 – 18}

Solution

For mixture I,

Total quantity = $36 \times 25/9 = 100$ liter

Quantity of wine = $100 - 36 = 64$ liter

CP = $50 \times 100/125 = \text{Rs.}40/\text{liter}$

For mixture J,

Ratio of wine to water = $100:50 = 2:1$

Quantity of wine = $81 \times 2/3 = 54$ liter

Quantity of water = $81 - 54 = 27$ liter

SP = $60 \times 125/100 = \text{Rs.}75/\text{liter}$

For mixture K,

Ratio of wine to water = $300:100 = 3:1$

Quantity of water = $48/3 = 16$ liter

Total quantity = $16 + 48 = 64$ liter

SP = $25 \times 120/100 = \text{Rs.}30/\text{liter}$

For mixture L,

Quantity of wine = $55 \times 6/5 = 66$ liter

Total quantity = $66 + 55 = 121$ liter

CP = $40 \times 75/100 = \text{Rs.}30/\text{liter}$

For mixture M,

Let quantity of wine is 'x'

$x + x - 24 = 96$

$x = 60$

Quantity of wine = 60 liter

Quantity of water = $96 - 60 = 36$ liter

SP = $50 \times 140/100 = \text{Rs.}70/\text{liter}$

Mixture	Total quantity (in liters)	Wine (in liters)	Water (in liters)	CP of wine per liter (in Rs)	SP of mixture per liter (in Rs)
I	100	64	36	40	50
J	81	54	27	60	75
K	64	48	16	25	30
L	121	66	55	30	40
M	96	60	36	50	70

14. Answer: D

According to question,

Overall profit earned on mixture J = $81 \times 75 - 54 \times 60 = 2835$

Overall profit earned on mixture K = $64 \times 30 - 48 \times 25 = 720$

Overall profit earned on mixture M = $96 \times 70 - 60 \times 50 = 3720$

Overall profit earned on mixture L = $121 \times 40 - 66 \times 30 = 2860$

Ratio = $(2835 + 720) : (3720 + 2860) = 3555 : 6580 = 711 : 1316$

15. Answer: C

According to question,

25% of mixture I = 25 liters

Quantity of wine = $64 - 16 = 48$

Quantity of water = $36 - 9 + 25 = 52$

Ratio of wine to water = $48:52 = 12:13$

25% of mixture = 25 liters

Quantity of wine = $48 - 12 = 36$

Quantity of water = $52 - 13 + 25 = 64$

Required % = $36 \times 100/100 = 36\%$

16. Answer: D

According to question,

Average quantity of wine in mixture K, L & M = $(48 + 66 + 60)/3 = 174/3 = 58$

Average quantity of water in mixture I, J & M = $(36 + 27 + 36)/3 = 99/3 = 33$

Required sum = $58 + 33 = 91$

17. Answer: E

According to question,

50% of mixture K = $64/2 = 32$

Quantity of wine = $32 \times 3/4 = 24$

Quantity of water = $32 - 24 = 8$

33.33% of mixture J = $81/3 = 27$

Quantity of wine = $27 \times \frac{2}{3} = 18$
 Quantity of water = $27 - 18 = 9$
 Required ratio = $(24+18) : (8+9) = 42 : 17$

18. Answer: C

According to question,
 Percentage of wine out of total quantity of mixture L = $\frac{66 \times 100}{121} = 54.54\%$
 Percentage of water out of total quantity of mixture M = $\frac{36 \times 100}{96} = 37.5\%$
 Required difference = $54.54 - 37.5 = 17.04\%$

{19 – 23}

In Mixture A, Quantity of Water = $100 - 14x = 30$

$14x = 70$ $x = 5$

Mixture →	A	B	C	D	E
Milk	70	105	80	60	95
Water	30	15	10	20	15
Total	100	120	90	80	110

19. Ans. (A)

In Mixture F, Quantity of Mixture A = $3x$ L, Quantity of Mixture E = $2x$ L
 In Mixture F, Milk = $3x \times \frac{7}{10} + 2x \times \frac{19}{22} = \frac{21x}{10} + \frac{19x}{11} = \frac{421x}{110}$
 Quantity of Mixture F = $3x + 2x + 20 = 5x + 20$ L
 CP of Pure milk = a Rs. /L
 Profit = 600

CP of Mixture F = $\frac{600}{0.25} = 2400$ Rs. = $\frac{421x}{100} \times a$
 $xa = \frac{264000}{421}$
 SP of Mixture F = $(5x + 20) \times 0.9a = 2400 \times 1.25 = 3000$
 $4.5xa + 18a = 3000$
 $4.5 \times \frac{264000}{421} + 18a = 3000$
 $18a = \frac{75000}{421}$
 $a = \frac{12500}{1263}$

CP of 2526 L milk = $2526 \times \frac{12500}{1263} = 25000$ Rs.

20. Ans. (D)

In 2207.5 L mixture, Milk = $2207.5 \times \frac{763}{883} = 1907.5$ L, Water = $2207.5 - 1907.5 = 300$ L

In Mixture P, Milk = 1907.5 L, Water = $300 - 47.5 = 252.5$ L

In mixture P, Milk : Water = $1907.5 : 252.5 = 763 : 101$

Let b L of Mixture B & c L of Mixture C is taken then

Milk in Mixture P = $b \times \frac{7}{8} + c \times \frac{8}{9} = (b + c) \times \frac{763}{864}$

$\frac{(63b + 64c)}{72} = (b + c) \times \frac{763}{864}$

$12(63b + 64c) = 763(b + c)$

$756b + 768c = 763b + 763c$

$7b = 5c$

$b : c = 5 : 7$

21. Ans. (A)

In Mixture N, Quantity of Mixture C = $3x$ L, Quantity of Mixture D = $2x$ L

After adding 15 L of Milk & 15 L of Water in Mixture N

Quantity of Milk = $(5x + 15 + 15) \times 0.8 = 3x \times \frac{8}{9} + 2x \times \frac{3}{4} + 15$

$4x + 24 = \frac{8x}{3} + 1.5x + 15$

$\frac{25x}{6} - 4x = 24 - 15$

$\frac{x}{6} = 9$

$x = 54$

Now Mixture N, Total Quantity of Mixture = $5 \times 54 = 270$ L

Final Mixture = $270 + 15 + 15 = 300$ L

Quantity of Milk = $300 \times 0.8 = 240$ L

After 2 replacement, Quantity of Milk = $240 \times (1 - \frac{60}{300})^2 = 240 \times 0.82 = 153.6$ L

22. Ans. (C)

Saving by Shopkeeper = $(50 \times 1.5 + 60 \times 2.5) - (50 \times 2.5 + 60 \times 1.5) = 60 - 50 = 10$ Rs.

23. Ans. (E)

In Final Mixture, Quantity of Milk = $x \times \frac{7}{10} + y \times \frac{7}{8} = (x + y) \times \frac{49}{64}$

$0.7x + 0.875y = \frac{49}{64}(x + y)$

$0.7x + 7 - 0.875x = 6.125$

$0.175x = 0.875$

$x = 5$ L, $y = 8 - 5 = 3$ L

After mixing x L of Mixture A & y L of Mixture B with Mixture C,

Total Mixture = $8 + 90 = 98$ L

Quantity of Water = $8 \times \frac{15}{64} + 10 = 1.875 + 10 = 11.875$ L

% of Water = $\frac{11.875}{98} \times 100 = \frac{2375}{196}\%$

{24 – 28}

In 2015, RD amount = $2x$ Rs. , FD amount = x Rs. ,

Loan amount = $13000 - (2x - x) = 13000 - x$ Rs.

$(13000 - x) \times 0.06 - x \times 0.04 = 380$

$780 - 0.06x - 0.04x = 380$

$0.1x = 400$

$x = 4000$ Rs.

Similarly solve for other years.

Year →	2015	2016	2017	2018	Total
FD Amount	4000	6000	3000	5000	18000
RD Amount	8000	4000	2000	1000	15000
Loan Amount	9000	8000	9000	7000	33000

24. Ans. (D)

Loss in 2015 = $8000 \times 0.05 + 4000 \times 0.04 - 9000 \times 0.06 = 400 + 160 - 540 = 20$ Rs.

25. Ans. (B)

Total Interest amount from deposits : Total Interest from Loan

= $(18000 \times 0.04 + 15000 \times 0.05) : (33000 \times 0.06)$

= $(720 + 750) : 1980 = 1470 : 1980 = 49 : 66$

26. Ans. (C)

Average Amount of Loan – Average Amount of RD = $\frac{33000}{4} - \frac{15000}{4} = \frac{18000}{4} = 4500$

27. Ans. (B)

In 2019, Amount of FD = x Rs. , Amount of Loan = $2x$ Rs.

$2x \times 0.06 - [x \times 0.04 + 2000 \times 0.05] = 140$

$0.12x - 0.04x - 100 = 140$

$0.08x = 240$

$x = 3000$

Interest on FD amount = $3000 \times 0.04 = 120$ Rs.

28. Ans. (B)

Average Profit from 2015 to 2108 = $\frac{(33000 \times 0.06 - 18000 \times 0.04 - 15000 \times 0.05)}{4}$

= $\frac{(33000 - 720 - 750)}{4} = \frac{510}{4} = 127.5$ Rs.