MBA PIONEER 2024

Data Interpretation & Logical Reasoning

DPP-05

Word Problems

Directions (1-5) Read the following passage and answer the given questions.

Directions: ***Read the following information and answer the question that follows:***

The below information is known regarding the monthly investment made by three people Amar, Akbar & Anthony in five investment schemes – FD, Mutual Fund, Equity Stocks, Crypto Stocks, EPF.

1. Total investments made by Amar in FD, Mutual Fund, Equity Stocks, Crypto Stocks & EPF are 4200 INR, 6400 INR, 4500 INR, 7300 INR & 8200 INR respectively.
2. Total investment made in the scheme EPF is 19000 INR.
3. Anthony's investment in Equity Stocks is 4000 INR more than that of Amar in the same scheme.
4. Anthony's investment in FD, Mutual Fund & Crypto Stocks are 5400 INR, 9500 INR & 5500 INR respectively.
5. Akbar's investment in scheme EPF is half of the investment made by Amar.
6. Akbar's investments in schemes FD, Mutual Fund, Equity Stocks & Crypto Stocks are 5200 INR, 8800 INR, 3700 INR,7700 INR respectively.

Q1 If Anthony invested for 5 and 7 months in schemes Mutual Fund & Crypto Stocks respectively and Amar invested for 4 & 6 months in Mutual Fund & Crypto Stocks respectively, then which of them invested more and by how much?

(A) 16600, Amar (B) 16000, Amar
(C) 16600, Anthony (D) 16000, Anthony

Q2 The no of months for which amount is invested by Amar, Akbar & Anthony in scheme Equity Stocks is 11, 13 & 5 months respectively, then the ratio of the investments made by all three is:

(A) 481 : 495 : 425
(B) 495 : 481 : 425
(C) 494 : 482: 425
(D) 482 : 494 : 425

Q3 Akbar & Anthony together invested for 9 & 8 months respectively in scheme FD. If 15% of the whole investment was donated, and the remaining amount is distributed between themselves in the ratio of their investments, then difference in the amounts received is:

(A) 4600 (B) 4400
(C) 3060 (D) 2480

Q4 If after 3 months Amar invests 1100 more in scheme EPF and after 5 months Anthony invests 1400 in the same scheme, then the ratio of the amount invested by Amar & Anthony after a year is:

(A) $\frac{1}{2}$ (B) $\frac{11}{10}$
(C) $\frac{19}{20}$ (D) $\frac{1083}{902}$

Q5 If Amar invests for 3 months, Akbar invests for 4 months and Anthony invests for 3 months in all the schemes, then the maximum difference in investment is:

(A) 24100 (B) 28400
(C) 26200 (D) 27300

Directions (6-10) Read the following passage and answer the given questions.

Below are the information for five types of Gaming laptops sold by two sellers (X and Y).

1. The Marked Price (MP) of MSI laptop sold by Y is ₹3000 more than the MP of the Microsoft laptop as sold by X
2. Y's profit margin for Apple, Microsoft and Razer is 25%, 12%, 30% respectively.
3. X's profit margin for Microsoft, Acer & Razer is 20%, 20%, 35% respectively.
4. The Marked Price (MP) of Microsoft laptop sold by X is ₹25, 000. The Cost Price (CP) of Razer laptop sold by Y is ₹16000

Also, note that- selling price (SP) may or may not be equal to M.P.

Q6 Approximately, how much percentage the cost price of the Microsoft laptop sold by seller X is less than the marked price of the Razer laptop sold by seller Y. If X gave 10% discount on Microsoft laptop while seller Y gave 20% discount on Razer Laptop on marked price?

(A) 25% (B) 26%
(C) 27% (D) 28%

Q7 What is the ratio between the cost price of Acer sold by seller X to the cost price of Apple sold by seller Y, if the marked price of Acer sold by X is 44% more than the marked price of Microsoft sold by X and marked price of Apple sold by Y is 56.25% more than the marked price of Razer sold by Y. [Assume that selling price is the same as marked price]

(A) 7 : 13 (B) 14 : 15
(C) 13 : 15 (D) 15 : 13

Q8 If seller Y sells MSI laptop at 20% discount, he gets Rs. 2400 as profit and if he gives 30% discount, he loses Rs. 400. Then what will be the profit percentage if in total 8 MSI laptops sold by seller Y, '2' laptop at 20% discount and '6' Laptop at 30% discount.

(A) 1.2% (B) 2.5%
(C) 1.5% (D) 2.2%

Q9 If the ratio between S.P. of Microsoft and Marked price of MSI sold by Y is 3 : 4, then what is the average Cost price of 2 laptops of Microsoft bought by X and 6 laptops of Microsoft bought by Y if X gave 10% discount of marked price.

(A) 18,750 (B) 17,550
(C) 16,750 (D) 15,550

Q10 If the average cost price of Acer and Razer bought by 'X' is 14,000 and average selling price of Acer and Razer by 'X' is 18,000 then what will be the difference between the cost price of Acer and Razer laptop bought by seller 'X'?

(A) 4,000 (B) 5,000
(C) 6,000 (D) 7,000

Directions (11-15) Read the following passage and answer the given questions.

Biryani Hut sells only chicken biryani to its customers. In every chicken biryani 250 gm rice, 200 gm chicken, 1 boiled egg is there. In making 1 plate of chicken biryani spices of 30 Rupees is used. The cook's cost per day is 500 INR who can handle at most 10 biryanis a day. Beyond that requirement, one more cook is needed. Assume that other than the cook, there is no other employee cost. A dozen of egg is purchased at 60 INR and processing all the food items in a plate costs 60 INR additionally per plate. The monthly rent for the kitchen space is 15,000 INR. Price of rice and chicken per kg are 60 INR and 150 INR respectively. Fixed costs other than salary per month is 10,000 INR. Consider 30 days in a month on an average for this question. Also assume that other than the aforementioned cost points no other costs are there unless otherwise specified in the respective questions.

Q11

If Biryani Hut sells each of the biryanis at 300 INR. Then minimum how many biryanis needed to be sold per month to make sure no losses are incurred. Assume that every day has the same number of plates of biryani demand.

(A) 250 (B) 260
(C) 270 (D) 280

Q12 If Biryani Hut sells each of the biryanis at 240 INR. Then minimum how many plates of biryani needed to be sold per month to make sure no losses are incurred. Assume that every day has exactly the same number of plates of biryani demand.

(A) 550 (B) 560
(C) 570 (D) 580

Q13 Biryani Hut sells each of the biryanis at 240 INR. Then find out what can be the maximum possible profit or minimum possible loss if a total of 550 plates are sold.

(A) 2500 (B) 2550
(C) 3000 (D) 3500

Q14 If the price of biryani dropped to 200 INR/plate how much profit/loss will be incurred by Biryani Hut to sell 900 plates of biryanis a month. Assume that the demand per day is the same.

(A) 15,000 INR loss
(B) 16,000 INR loss
(C) 17,000 INR loss
(D) 18,000 INR loss

Q15 Biryani Hut has optimised the processing and reduced the processing cost by 30 INR/plate. If the price of biryani dropped to 200 INR/plate how much profit/loss will be incurred by Biryani Hut to sell 900 plates of biryanis a month. Assume that the demand per day is the same.

(A) 10,000 INR profit
(B) 11,000 INR profit
(C) 12,000 INR profit
(D) 13,000 INR profit

Directions (16-20) Read the following passage and answer the given questions.

The below information is known about the rate of interest offered by 5 banks across different schemes like FD, RD, ULIP & SIP –

1. SBI offers interest rates in FD, RD, ULIP & SIP 8.50%, 9.50%, 8% and 10% respectively.
2. Union Bank's interest rates for ULIP is same as that of SBI's. HDFC Bank & PNB offers the same interest rates in ULIP which is equal to the interest rates as provided by Union Bank in RD.
3. Axis Bank offers 8%, 9%, 7.50%, 10.50% respectively in FD, RD, ULIP & SIP respectively
4. HDFC offers 8.50%, 9%, 8.50% and 9.50% interest in FD, RD, ULIP & SIP respectively
5. PNB offers 9%, 8.50%, 10% interest rates in FD, RD & SIP respectively.
6. Union Bank offers 9% interest rate in FD and 9.50% interest rate in SIP.

Q16 Mr. Tripathi deposited an amount in RD with Axis Bank for two years. After that he withdrew the amount and reinvested only the principal amount in SIP of Union Bank for two years. Total amount of simple interest accrued from the two schemes is Rs 14,800. What was the principal amount

(A) 35000 (B) 40000
(C) 45000 (D) 50000

Q17 PNB offers compound interest under FD and SBI offers simple interest under SIP. What will be the difference between the interests earned under FD of PNB and SIP of SBI respectively in two years on an amount of Rs 1.2 lakhs?

(A) 1428 (B) 1539
(C) 1640 (D) 1751

Q18 HDFC Bank offers compound interest under RD and simple interest under SIP.

Sumit invested Rs 25000 with this bank under SIP and after one year switched to RD along with the interest for one more year. What is the total amount he will get at the end of two years? (approx.)

(A) 27617 (B) 28728
(C) 29839 (D) 20940

Q19 Arijit invested an amount of Rs 45,000 for two years with Union Bank under ULIP, which offers compound interest, and Mohit invested an equal amount for two years with Axis Bank under SIP, which offers simple interest. Who earned more interest and how much?

(A) Arijit, Rs. 1875
(B) Mohit, Rs. 1875
(C) Mohit, Rs. 1962
(D) Arijit, Rs. 1962

Q20 Gaurav invested Rs 30,000 for two years in SBI under RD, which offers simple interest and Rs 48,000 for two years in HDFC Bank under RD, which offers compound interest. What will be the total amount of interest earned by Gaurav in two years?

(A) Rs. 14728.80 (B) Rs. 15183.50
(C) Rs. 14827.70 (D) Rs. 16064.20

Directions (21-25) Read the following passage and answer the given questions.

Following data shows the degree wise breakup of number of pages contained by five different chapters in a book –

1. Chapter 3 has twice the number of pages as chapter 4
2. Chapter 3 has thrice the number of pages as chapter 1
3. Chapter 2 has 25% of the number of pages in the book
4. The difference between the number of pages in chapter 2 & chapter 5 is equal to the number of pages in chapter 1 where chapter 5 has the lower number of page count as compared to chapter 2.
5. Total number of pages in book = 720

Q21 Which chapter has more number of pages than other chapters in the book?

(A) First (B) Second
(C) Third (D) Fourth

Q22 The ratio between the number of pages first chapter has and the number of pages second chapter has is:

(A) 4 : 9 (B) 4 : 5
(C) 1 : 3 (D) 5 : 6

Q23 What is the average number of pages contained by second, third, and fourth chapters?

(A) 150 (B) 160
(C) 170 (D) 180

Q24 Chapter fifth has three sections- A, B, and C. Ratio between the number of pages in section A, B, and C respectively is 3 : 4 : 3. Find the number of pages in section B.

(A) 30 (B) 40
(C) 50 (D) 60

Q25 Number of pages in chapter 4th is what percentage of the number of pages in chapter 2nd?

(A) 30% (B) $\frac{200}{3}\%$
(C) $\frac{100}{3}\%$ (D) 100%

Directions (26-30) Read the following passage and answer the given questions.

Following data depicts the individual and combined score of each of the four students in two different tests - UPSC Prelims and UPSC Mains-

1. Abhilash's score in Prelims is the average of that of Guri & Sandeep in Prelims.
2. Suketu, who scored 30 marks in prelims got the least of all the 4 aspirants in Prelims

exam

3. Guri, who scored the highest in prelims scored the least in Mains out of the 4 aspirants. His score in Mains is equal to 10
4. Sandeep's score in Mains and prelims are the same. 80 is the highest marks scored by any aspirant across Prelims & Mains
5. Abhilash scored a total of 140 marks in UPSC Prelims and Mains combined and is the only aspirant who scored more in Mains than Prelims.
6. Scores of all the aspirants in each of the exams are multiples of 10 and the total scores of Sandeep, Guri & Suketu in Prelims and Mains are 100, 50 & 80 not necessarily in the same order.

Q26 What is the sum of scores of Abhilash and Sandeep in UPSC Mains?

(A) 120 (B) 125
(C) 130 (D) 135

Q27 The student who scored the same score in both tests, scored how many marks more in Prelims than the person who scored the least in Prelims?

(A) 10 (B) 20
(C) 30 (D) 40

Q28 The average score in UPSC Prelims per student for all four students is:

(A) 52.5 (B) 48
(C) 60 (D) 55.2

Q29 Guri's score in UPSC Mains is what percentage of the Suketu's score in UPSC Mains?

(A) 40% (B) 45%
(C) 50% (D) 55%

Q30 Abhilash's combined score in both tests is what percent more than Suketu's combined score in both tests?

(A) 150% (B) 160%
(C) 170% (D) 180%

Answer Key

Q1	(C)	Q16	(B)
Q2	(B)	Q17	(A)
Q3	(C)	Q18	(C)
Q4	(D)	Q19	(C)
Q5	(C)	Q20	(A)
Q6	(D)	Q21	(C)
Q7	(D)	Q22	(A)
Q8	(C)	Q23	(D)
Q9	(A)	Q24	(B)
Q10	(A)	Q25	(B)
Q11	(C)	Q26	(C)
Q12	(C)	Q27	(B)
Q13	(A)	Q28	(A)
Q14	(B)	Q29	(C)
Q15	(B)	Q30	(D)

Hints & Solutions

Q1. Text Solution:
Topic: Word Problems

From the given data one can form this table,

	FD	MUTUAL FUND	EQUITY STOCKS	CRYPTO STOCKS	EPF
AMAR	4200	6400	4500	7300	8200
AKBAR	5200	8800	3700	7700	4100
ANTHONY	5400	9500	8500	5500	6700

Amount invested by Anthony in Mutual Fund = 9500 × 5 = 47500
Amount invested by Anthony in Crypto Stocks = 5500 × 7 = 38500
Total amount invested by Anthony = 86000
Amount invested by Amar in Mutual Fund = 6400 × 4 = 25600
Amount invested by Amar in Crypto Stocks = 7300 × 6 = 43800
Total amount invested by Amar = 69400
Required difference = 86000 – 69400 = 16600.
The answer is option C.

Q2. Text Solution:
Topic: Word Problems

From the given data one can form this table,

	FD	MUTUAL FUND	EQUITY STOCKS	CRYPTO STOCKS	EPF
AMAR	4200	6400	4500	7300	8200
AKBAR	5200	8800	3700	7700	4100
ANTHONY	5400	9500	8500	5500	6700

Total investment by Amar in scheme Equity Stocks is = 4500 × 11 = 49500
Total investment by Akbar in scheme Equity Stocks is = 3700 × 13 = 48100
Total investment by Anthony in scheme Equity Stocks is = 8500 × 5 = 42500
Required Ratio = 495 : 481 : 425.
The answer is option B.

Q3. Text Solution:
Topic: Word Problems

	FD	MUTUAL FUND	EQUITY STOCKS	CRYPTO STOCKS	EPF
AMAR	4200	6400	4500	7300	8200
AKBAR	5200	8800	3700	7700	4100
ANTHONY	5400	9500	8500	5500	6700

Total investment by Akbar in scheme FD = 5200 × 9 = 46800
Total investment by Anthony in scheme FD = 5400 × 8 = 43200
Total investment by Akbar & Anthony in scheme FD = 46800 + 43200 = 90000
15% was donated, so the remaining amount = 85% of 90000 = 76500
Amount is distributed in the ratio of their investments = 46800 : 43200 = 13 : 12
Amount received by Akbar = $\frac{13}{25}$ x 76500 = 39780
Amount received by Anthony = $\frac{12}{25}$ x 76500 = 36720
Difference = 39780 – 36720 = 3060.
The answer is option C.

Q4. Text Solution:
Topic: Word Problems

	FD	MUTUAL FUND	EQUITY STOCKS	CRYPTO STOCKS	EPF
AMAR	4200	6400	4500	7300	8200
AKBAR	5200	8800	3700	7700	4100
ANTHONY	5400	9500	8500	5500	6700

Investment by Amar in scheme EPF for first 3 months = 8200 × 3 = 24600

Investment by Amar in scheme EPF for remaining months = (8200 + 1100) × 9 = 9300 × 9 = 83700

Total Investment by Amar = 108300

Investment by Anthony in scheme EPF for first 5 months = 6700 × 5 = 33500

Investment by Anthony in scheme EPF for remaining months = (6700 + 1400) × 7 = 8100 × 7 = 56700

Total investment by Anthony = 90200

Ratio of investments = $\frac{108300}{90200} = \frac{1083}{902}$

The answer is option D.

Q5. Text Solution:

Topic: Word Problems

The total investments made by all three persons in these schemes is shown below:

Schemes	Amar	Akbar	Anthony
FD	4200	5200	5400
Mutual Fund	6400	8800	9500
Equity Stocks	4500	3700	8500
Crypto Stocks	7300	7700	5500
EPF	8200	4100	6700
Total	30600	29500	35600

Total investment made by Amar in all schemes = 30600 × 3 = 91800

Total investment made by Akbar in all schemes = 29500 × 4 = 118000

Total investment made by Anthony in all schemes = 35600 × 3 = 106800

Then, maximum difference in investment is = 118000 – 91800 = 26200

The answer is option C.

Q6. Text Solution:

Topic: Word Problems

S.P. of Microsoft sold by $X = 25,000 \times [1 - 10/100] =$ Rs. 22,500

$$\text{S.P.} = 22,500 = \left[1 + \frac{20}{100}\right] \times (\text{C.P})_{\text{Microsoft}}$$

$$\Rightarrow (\text{C.P.})_{\text{Microsoft}} = \text{Rs. } 18,750$$

S.P. of Razer sold by $Y = 16,000\left(1 + \frac{30}{100}\right) = 20,800$

$$(MP)_{\text{Razer}} \times \left(1 - \frac{20}{100}\right) = 20,800$$

$$(M.P)_{\text{Razer}} = 26,000$$

Desired percentage $= \frac{26,000 - 18,750}{26,000} \times 100$

$$= 28\%$$

The answer is option D.

Q7. Text Solution:

Topic: Word Problems

$$\text{Desired Ratio} = \frac{\text{C.P. of Acer by } X}{\text{C.P. of Apple by } Y}$$

$$\text{M.P. of Acer} = \left(1 + \frac{44}{100}\right) \times 25,000$$

$$= 25,000 \times \frac{144}{100}$$

$$\text{C.P. of Acer} = 25,000 \times \frac{144}{100} \times \frac{100}{120}$$

$$= 30,000$$

$$\text{M.P of Apple} = 16,000\left(1 + \frac{30}{100}\right)\left(1 + \frac{56.25}{100}\right) = 16,000 \times \frac{130}{100} \times \frac{156.25}{100}$$

$$\text{C.P. of Apple} = 16,000 \times \frac{130}{100} \times \frac{156.25}{100} \times \frac{100}{125}$$

$$= 26,000$$

$$\text{Desired Ratio} = \frac{30,000}{26,000} = \frac{15}{13}$$

The answer is option D.

Q8. Text Solution:

Topic: Word Problems

MP of MSI laptop sold by Y = 25000 + 3000 = 28000.

M.P. after 20% discount

$= 28,000\left(1-\frac{20}{100}\right) = 22,400$

C.P. = 22,400 – 2,400 = 20,000

M.P. after 30% discount

$= 28,000\left(1-\frac{30}{100}\right) = 19,600$

C.P. = 19,600 + 400 = 20,000

Net Profit = 2 × 2400 – 6 × 400 = 2400

Profit% = $\frac{2400}{8\times 20,000}$ x 100 = 1.5%

The answer is option C.

Q9. Text Solution:
Topic: Word Problems

S.P. of Microsoft by Y = 28,000 x $\frac{3}{4}$ = 21,000

C.P. of Microsoft bought by X = $25,000 \times \frac{90}{100} \times \frac{100}{120} = 18,750$

C.P. of Microsoft bought by Y $= 21,000 \times \frac{100}{112} =$ 18,750

Desired average = $\frac{2\times 18,750+6\times 18,750}{8} = 18,750$

The answer is option A.

Q10. Text Solution:
Topic: Word Problems

Let, C.P. of Acer = x

C.P. of Razer = y

According to question,

$$\frac{x+y}{2} = 14,000$$

x+y = 28,000 ..(i).

$$\frac{(x\times 1.2+y\times 1.35)}{2} = 18,000$$

1.2x+1.35y = 36,000..(ii)

On solving (i) and (ii)

y=16,000

x=12,000

Desired difference = 16,0000 - 12,000

= 4,000

The answer is option A.

Q11. Text Solution:
Topic: Word Problems

The variable cost of the biryani = (cost of chicken + rice cost + egg's cost + processing cost + spice cost)

So, the variable cost per biryani is $(150\times 0.2+60\times 0.25+\frac{60}{12}+$ $60+30)INR = (30+15+5+90)INR$ $= 140INR$

The fixed cost per month (assuming one cook) is (500

30 + 15,000 + 10,000) INR = 40,000 INR

Let us assume that a minimum of n number of biryani plates needs to be sold in a month to avert the losses.

So,

300n ≥ 140n + 40,000

=> n ≥ 40,000/160

=> n ≥ 250

Thus, the number of biryanis needed to be sold to make sure no loss is 250 plates.

As everyday the average demand is the same and $\frac{250}{30}$ is not an integer, so the answer will be 270 plates.

The answer is option C.

Q12. Text Solution:
Topic: Word Problems

The variable cost of the biryani = (cost of chicken + rice cost + egg's cost + processing cost + spice cost)

So, the variable cost per biryani is $(150\times 0.2+60\times 0.25+\frac{60}{12}+$ $60+30)INR = (30+15+5+90)INR$ $= 140INR$

The fixed cost per month (assuming one cook) is (500

30 + 15,000 + 10,000) INR = 40,000 INR

Let us assume that a minimum of n number of biryani plates needs to be sold in a month to avert the losses.

So,

240n ≥ 140n + 40,000
=> 100n ≥ 40,000
=> n ≥ 400
Now, one cook can not handle pressure of more than 30 × 10 = 300 biryanis. So, one more cook is needed for all the days as the daily average biryani requirement is more than 10.
So, considering 2 cooks we get–
240n ≥ 140n + 40,000 + 15,000
=> 100n ≥ 55,000
=> n ≥ 550
The per day demand is $\frac{550}{30} = 18.33$
As the demand per day is the same and it cannot be a fraction, so the minimum number of daily demands is 19.
Thus, the minimum of plates of biryani is 19 × 30 = 570 (Ans)
The answer is option C.

Q13. Text Solution:
Topic: Word Problems

In a 30 day month, a total of 300 plates can be made by 1 cook. So, to have 550 plates we need at least 2 cooks.
To minimise the cost, we need to make sure that the second cook gets fully utilised like the first cook.
So, the second cook will be used for only $\frac{550-300}{10}$ days = 25 days
So, the minimum possible cook cost is
500 × (30 + 25) = 27500 INR
Total cost = (27,500 + 25,000) INR = 52,500 INR
So, total revenue less the variable cost is
(240 – 140) × 550 = 55,000 INR
Maximum possible profit is (55000 – 52500) INR = 2500 INR
The answer is option A.

Q14. Text Solution:
Topic: Word Problems

Total number of biryanis produced per day = $\frac{900}{30}$ = 30 plates
So, 3 cooks are needed.
Hence, the fixed cost is 15000 × 3 + 15000 + 10000 = 70,000 INR
Revenue after removing the per-plate cost of chicken biryani,
= 900 × (200 – 140) INR = 54000 INR
So, the loss is (70,000 – 54,000) INR = 16,000 INR
The answer is option B.

Q15. Text Solution:
Topic: Word Problems

Total number of biryanis produced per day = $\frac{900}{30}$ = 30 plates
So, 3 cooks are needed.
Hence, the fixed cost is 15000 × 3 + 15000 + 10000 = 70,000 INR
The revenue less variable cost for these 900 plates
= 900 × (200 – 140 + 30) INR = 81,000 INR
So, the profit is (81,000 – 70,000) INR = 11,000 INR
The answer is option B.

Q16. Text Solution:
Topic: Word Problems

Let principal amount be P.

$$SI_1 + SI_2 = 14800$$
$$\frac{P(9 \times 2 + 9.5 \times 2)}{100} = 14800$$
$$\Rightarrow \frac{37P}{100} = 14800$$
$$\Rightarrow P = \frac{148000}{37} = 40,000$$

The answer is option B.

Q17. Text Solution:
Topic: Word Problems

Interest earned if invested in PNB = Amount - Principal
= $120000(1 + 0.09)^2$ - 120000
= 142572 - 120000
Interest = 22572
Interest earned if invested in SBI

Interest = 120000 × 0.1 × 2 = 24000
Difference in interests = 24,000 - 22,572 = 1,428
The answer is option A.

Q18. Text Solution:
Topic: Word Problems

First year,
Interest $= 25000 \times \frac{9.5}{100} = 2375$
Amount = 25,000 + 2,375 = 27,375
Second Year
Amount = 27,375 × (1 + 0.09)
= 27,375 × (1+ 1.09)
= 27375 × 1.09
= 29839 (approx.)
The answer is option C.

Q19. Text Solution:
Topic: Word Problems

Arijit's earnings:

$$\begin{aligned}\text{Amount } &= 45,000 \times (1+0.08)^2 \\ &= 45,000 \times (1.1664) \\ &= 52,488 \\ \text{Interest } &= 52,488 - 45,000 = 7,488\end{aligned}$$

Mohit's Earnings:

$$\begin{aligned}\text{Interest } &= 45,000 \times 2 \times \frac{10.5}{100} \\ &= 450 \times 21 = 9450\end{aligned}$$

Therefore, Mohit earns more than Arijit.

$$\text{Difference } = 9450 - 7488 = 1,962.$$

The answer is option C.

Q20. Text Solution:
Topic: Word Problems

Simple Interest in 1st scheme = $30,000 \times 2 \times \frac{9.5}{100} = 5700$
Compound interest in 2nd scheme = Amount – Principal
Amount = 48000 $(1 + 0.09)^2$ = 57028.80
Interest = 57028.80 – 48000 = 9028.80
Total interest earned = 5700 + 9028.80 = 14,728.80
The answer is option A.

Q21. Text Solution:
Topic: Word Problems

Let the total number of pages in chapter 3 is 6x
So, the number of pages in chapter 1 & 4 are 2x and 3x respectively.
Chapter 2 has 25% 720 = 180 pages.
Chapter 5 has total 180 – 2x pages
So,
6x + 2x + 3x + 180 + 180 – 2x = 720
9x = 360
x = 40
6x = 240
2x = 80
3x = 120
180 – 2x = 100
So, the **third** chapter has more number of pages than other chapters in the book.
Answer: -C

Q22. Text Solution:
Topic: Word Problems

Total number of pages = 720
Let the total number of pages in chapter 3 is 6x
So, the number of pages in chapter 1 & 4 are 2x and 3x respectively.
Chapter 2 has 25% 720 = 180 pages in it
Chapter 5 has total 180 – 2x pages
So,
6x + 2x + 3x + 180 + 180 – 2x = 720
9x = 360
x = 40
6x = 240
2x = 80
3x = 120
180 – 2x = 100
Required ratio = 80: 180 = **4: 9**
Answer: -A

Q23. Text Solution:
Topic: Word Problems

Let the total number of pages in chapter 3 is 6x
So, the number of pages in chapter 1 & 4 are 2x and 3x respectively.
Chapter 2 has 25%720 = 180 pages in it
Chapter 5 has total 180 – 2x pages
So,
6x + 2x + 3x + 180 + 180 – 2x = 720
9x = 360
x = 40
6x = 240
2x = 80
3x = 120
180 – 2x = 100
Required average = $\frac{180+240+120}{3} = 180$
Answer: -D

Q24. Text Solution:
Topic: Word Problems

Total number of pages in book = 720.
Let the total number of pages in chapter 3 is 6x
So, the number of pages in chapter 1 & 4 are 2x and 3x respectively.
Chapter 2 has 25% 720 = 180 pages in it
Chapter 5 has total 180 – 2x pages
So, 6x + 2x + 3x + 180 + 180 – 2x = 720
9x = 360
x = 40
6x = 240
2x = 80
3x = 120
180 – 2x = 100
Given, ratio between the number of pages in section A, B, and C respectively = 3: 4: 3
So, number of pages in section B = $\frac{4}{10} \times 100 = 40$
Answer: -B

Q25. Text Solution:
Topic: Word Problems

Let the total number of pages in chapter 3 is 6x
So, the number of pages in chapter 1 & 4 are 2x and 3x respectively.
Chapter 2 has 25% × 720 = 180 pages in it
Chapter 5 has total 180 – 2x pages
So,
6x + 2x + 3x + 180 + 180 – 2x = 720
9x = 360
x = 40
6x = 240
2x = 80
3x = 120
180 – 2x = 100
Required percentage $= 120 \times \frac{100}{180} = \frac{200}{3}\%$
Answer: -B

Q26. Text Solution:
Topic: Word Problems

From condition 2, 5 & 6 we can state that Suketu's score in Prelims will be 30, his score in Mains is not more than that of prelims. So, he scores not more than 60. Thus, out of the three total scores in Prelims and Mains, Suketu can only score 50.
So, Suketu's score in Prelims = 30
Suketu's score in mains = (50 – 30) = 20
Guri's score in mains = 10
His score in Prelims is either 70 or 90. A score of 90 is not possible as 80 is the highest possible score.
So, Guri's score in Prelims is 70.
The combined score of Sandeep in both tests = 100
Score of Sandeep in UPSC Prelims = 50
Score of Sandeep in UPSC Mains = 100 - 50 = 50
As per condition 1, Abhilash's score in Prelims is the average of that of Guri & Sandeep in Prelims.
So, Abhilash's score in Prelims will be $\frac{70+50}{2} = 60$
The combined score of Abhilash in both tests = 140
Thus, Abhilash's score in Mains is 80.
Hence the required table will be,

S.No	Prelims	Mains	Total
Abhilash	60	80	140
Sandeep	50	50	100
Guri	70	10	80
Suketu	30	20	50

Required sum = 80 + 50 = **130**.

The answer is option C.

Q27. Text Solution:

Topic: Word Problems

From conditions 2, 5 & 6 we can state that Suketu's score in Prelims will be 30, his score in Mains is not more than that of prelims. So, he scores not more than 60. Thus, out of the three total scores in Prelims and Mains, Suketu can only score 50.

So, Suketu's score in Prelims = 30

Suketu's score in mains = (50 – 30) = 20

Guri's score in mains = 10

His score in Prelims is either 70 or 90. A score of 90 is not possible as 80 is the highest possible score.

So, Guri's score in Prelims is 70.

The combined score of Sandeep in both tests = 100

Score of Sandeep in UPSC Prelims = 50

Score of Sandeep in UPSC Mains = 100 - 50 = 50

As per condition 1, Abhilash's score in Prelims is the average of that of Guri & Sandeep in Prelims.

So, Abhilash's score in Prelims will be $\frac{70+50}{2} = 60$

The combined score of Abhilash in both tests = 140

Thus, Abhilash's score in Mains is 80.

Hence the required table will be,

S.No	Prelims	Mains	Total
Abhilash	60	80	140
Sandeep	50	50	100
Guri	70	10	80
Suketu	30	20	50

So, the difference is (50 – 30) = **20**.

The answer is option B.

Q28. Text Solution:

Topic: Word Problems

From conditions 2, 5 & 6 we can state that Suketu's score in Prelims will be 30, his score in Mains is not more than that of prelims. So, he scores not more than 60. Thus, out of the three total scores in Prelims and Mains, Suketu can only score 50.

So, Suketu's score in Prelims = 30

Suketu's score in mains = (50 – 30) = 20

Guri's score in mains = 10

His score in Prelims is either 70 or 90. A score of 90 is not possible as 80 is the highest possible score.

So, Guri's score in Prelims is 70.

The combined score of Sandeep in both tests = 100

Score of Sandeep in UPSC Prelims = 50

Score of Sandeep in UPSC Mains = 100 - 50 = 50

As per condition 1, Abhilash's score in Prelims is the average of that of Guri & Sandeep in Prelims.

So, Abhilash's score in Prelims will be $\frac{70+50}{2} = 60$

The combined score of Abhilash in both tests = 140

Thus, Abhilash's score in Mains is 80.

Hence the required table will be,

S.No	Prelims	Mains	Total
Abhilash	60	80	140
Sandeep	50	50	100
Guri	70	10	80
Suketu	30	20	50

Average score in UPSC Prelims per student for all four students $= \frac{(60+50+70+30)}{4} = 52.5$

The answer is option A.

Q29. Text Solution:

Topic: Word Problems

From conditions 2, 5 & 6 we can state that Suketu's score in Prelims will be 30, his score in Mains is not more than that of prelims. So, he scores not more than 60. Thus, out of the three total scores in Prelims and Mains, Suketu can only score 50.

So, Suketu's score in Prelims = 30

Suketu's score in mains = (50 – 30) = 20

Guri's score in mains = 10

His score in Prelims is either 70 or 90. A score of 90 is not possible as 80 is the highest possible score.

So, Guri's score in Prelims is 70.

The combined score of Sandeep in both tests = 100

Score of Sandeep in UPSC Prelims = 50

Score of Sandeep in UPSC Mains = 100 - 50 = 50

As per condition 1, Abhilash's score in Prelims is the average of that of Guri & Sandeep in Prelims.

So, Abhilash's score in Prelims will be $\frac{70+50}{2} = 60$

The combined score of Abhilash in both tests = 140

Thus, Abhilash's score in Mains is 80.

Hence the required table will be,

S.No	Prelims	Mains	Total
Abhilash	60	80	140
Sandeep	50	50	100
Guri	70	10	80
Suketu	30	20	50

Guri's score in UPSC Mains = 80 - 70 = 10

Suketu's score in UPSC Mains = 50 - 30 = 20

Required percentage $= \frac{10}{20} \times 100 = 50\%$

The answer is option C.

Q30. Text Solution:

Topic: Word Problems

From conditions 2, 5 & 6 we can state that Suketu's score in Prelims will be 30, his score in Mains is not more than that of prelims. So, he scores not more than 60. Thus, out of the three total scores in Prelims and Mains, Suketu can only score 50.

So, Suketu's score in Prelims = 30

Suketu's score in mains = (50 – 30) = 20

Guri's score in mains = 10

His score in Prelims is either 70 or 90. A score of 90 is not possible as 80 is the highest possible score.

So, Guri's score in Prelims is 70.

The combined score of Sandeep in both tests = 100

Score of Sandeep in UPSC Prelims = 50

Score of Sandeep in UPSC Mains = 100 - 50 = 50

As per condition 1, Abhilash's score in Prelims is the average of that of Guri & Sandeep in Prelims.

So, Abhilash's score in Prelims will be $\frac{70+50}{2} = 60$

The combined score of Abhilash in both tests = 140

Thus, Abhilash's score in Mains is 80.

Hence the required table will be,

S.No	Prelims	Mains	Total
Abhilash	60	80	140
Sandeep	50	50	100
Guri	70	10	80
Suketu	30	20	50

Abhilash's combined score in both tests = 140

Suketu's combined score in both tests = 50

Required percentage $= (140 - 50) \times \frac{100}{50}$

= 90 × 2

= **180%**

The answer is option D.