

MBA PIONEER 2024

Data Interpretation & Logical Reasoning

DPP:1

Tables

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

Answer the questions on the basis of the information given below.

DIFFERENT HOTEL CHAINS			
	Net profit (Rs. In crore)	Percentage of profits disbursed as dividend	
	2018-19	2019-20	2018-19
H1	471	531	35
H2	259	501	45
H3	282	322	40
H4	229	251	55
H5	31	41	40
H6	46	42.5	30
H7	129	138	85
H8	20	37.5	45
H9	96	123	50
H10	6	7	38
H11	36	40	60
H12	25	28	50
			75

Q1 Find the approximate difference between the profit of H1 in 2018-19 and the average profit of all the hotels together in 2019-20?

- (A) 346 (B) 169
 (C) 865 (D) 300

Q2 Find the ratio between the profit earned by H5 and H7 together in 2018-19 to the profit earned by H6 and H8 together in 2019-20?

- (A) 2 : 1 (B) 11 : 29
 (C) 1 : 1 (D) 3 : 4

Q3 What is the percentage increase in net profits of H4 in 2019-20?

- (A) 9.6% (B) 9.1%
 (C) 8.8% (D) 99%

Q4 Which hotel showed the second highest percentage increase in profits in 2019-20 out of H2, H8, H5 and H1.

- (A) H2 (B) H8
 (C) H5 (D) H1

Q5 Which hotel disbursed the highest dividend in 2018-19?

- (A) H10 (B) H1
 (C) H2 (D) H4

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

Directions: A business strategy competition was conducted in which 5 schools A, B, C, D and E participated in the final round. The event was finally won by school C. The following table gives the number of girls from A, B, D and E who participated in the event as a percentage of the total students from school C who participated in the event.

School	%
A	40
B	15
D	25
E	20

It is also known that the ratio of the number of girls to boys in the schools A, B, D and E who participated in the event was 1:3, 3:2, 4:3 and 5:3 in no particular order.

Q6 It is known that 180 students participated from school C. Find the number of boys who participated from school D?

- (A) 27 (B) 45
 (C) 72 (D) 36

Q7 It is known that the number of boys who participated from schools A,B,D and E were 14, 24, 27 and 30 in no particular order. Find the maximum number of students who participated from the four schools put together?

- (A) 235 (B) 225
 (C) 210 (D) Cannot be determined

Q8 It is known that 180 students participated from school C. The maximum number of students who participated is from which school?

- (A) A (B) B
 (C) E (D) Cannot be determined



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- Q9** If it is known that 80 students participated from school C, find the difference between the number of boys who participated from school B and school D?
- (A) 4
(B) 6
(C) 8
(D) Cannot be determined

- Q10** It is known that 80 students participated from school C. Which among the following can be the ratio of the number of boys who participated from school A to the total number of students who participated from school B?
- (A) 5 : 6
(B) 6 : 5
(C) 1 : 1
(D) Cannot be determined

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

Directions: The table given below shows the total number of sanitizers which were estimated to be sold in five states. Out of total sanitizers sold a percentage of 70% Alcohol sanitizers sold, and the ratio between 30% Alcohol and 0% Alcohol sanitizers is given. Study the data carefully and answer the following questions.

States	Sanitizers that can be sold	70% Alcohol sanitizers sold (in%)	30% Alcohol : 0% Alcohol sanitizers
U.P.	2300	15%	9 : 8
West Bengal	4500	35%	5 : 8
Telangana	3800	25%	4 : 5
Gujarat	1000	45%	5 : 3
Delhi	1500	20%	8 : 5

Note: 200 sanitizers remain unsold in each state which can be sold.

Total sanitizers in each state = 70% Alcohol sanitizers + 30% Alcohol sanitizers + 0% Alcohol sanitizers + unsold sanitizers

- Q11** Total 30% Alcohol sanitizers sold in U.P. is how much less/more than 0% Alcohol sanitizers sold in Delhi?
- (A) 320 (B) 425
(C) 545 (D) 670

- Q12** Find the average number of total 70% Alcohol sanitizers sold by all the five states together?
- (A) 300 (B) 420
(C) 595 (D) 668

- Q13** Find the average number of total 30% Alcohol sanitizers sold by all the five states together?
- (A) 1080 (B) 980
(C) 910 (D) 827

- Q14** Total 70% Alcohol and 0% Alcohol sanitizers sold in West Bengal is approximately what percent more than the total number of 70% Alcohol and 30% Alcohol sanitizers sold in Gujarat state?
- (A) 100% (B) 220%
(C) 375% (D) 408%

- Q15** Find the ratio between total 0% Alcohol sanitizers sold in Telangana and Gujarat together to total 30% Alcohol sanitizers sold in West Bengal and Telangana?
- (A) 1 : 3 (B) 333 : 455
(C) 299 : 311 (D) 457 : 333

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

Refer to the data below and answer the questions that follow.

A famous Maths book was published in a country in four languages namely, Bengali, Marathi, Spanish and English. These books were published in two types, "Notebooks" and "Practice books". Some of these books are "Good" and some are "Not Good" according to the feedback given by the students.

The following table gives the information on the books published in the country.

	Bengali	Marathi	Spanish	English
Total number of books published	400	500	200	300
Number of notebooks as a percentage of total books published	60%	80%	40%	70%
Percent of notebooks that were "Good" according to the students	50%	37.5%	25%	40%
Percent of Practice books that were "Not Good" according to the students	12.5%	40%	60%	30%
Total number of books published	400	500	200	300

- Q16** What percent of the total books published in the country received "Good" feedback by the students? [Approximate to the nearest integer]



Q17 What was the percent of Notebooks out of the total books published in the four languages in the country? [Approximate to the nearest integer]

Q18 Books published in how many languages received "Good" feedback for at least 60% of the total books published in that language?

Q19 What was the percent of Practice books that received "Good" feedback from the students? [Approximate to the nearest integer]

Q20 Find the total number of Books that received "Not Good" feedback by the students?

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

Directions: Read the following passage and answer the questions that follow:

The School has a total of 2000 faculty members, 62.5% of whom are Assistant Teachers, and the rest are divided in the ratio 3:2 between Associate Teachers and Teachers respectively.

	Females	Married
Assistant Teachers	---	40%
Associate Teachers	60%	---
Teachers	55%	71%
Total	48%	50.50%

The table shows the percentage of female faculty members and the percentage of married faculties in a School.

Q21 Among Married Associate Teachers, if 66.66 %are female, what is the difference between the number of married males and unmarried females?

- (A) 144 (B) 27
(C) 72 (D) 99

Q22 If among the Assistant Teachers, 60% of females are married, what is the number of married males?

- (A) 320 (B) 315
(C) 210 (D) 185

Q23 What is the percentage of Male Assistant Teachers?

- (A) 42% (B) 55%
(C) 61% (D) 58%

Q24 What is the percentage of married faculties among Assistant Teachers and Teachers combined?

- (A) 50.5 (B) 66
(C) 46 (D) 58

Q25 What is the percentage of Married faculties among Associate Teachers?

- (A) 46 (B) 50.5
(C) 62 (D) 66

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

The table given below shows the average monthly income (in Rs.) and annual savings (in Rs.) of four different persons, namely 'A', 'B', 'C' and 'D'. The table also shows the number of months for which a person was employed during the given year.

Note:

- a) The average monthly income and average monthly expenditure are calculated for the whole year i.e. 12 months, irrespective of the number of months for which the person is employed.
b) For each person, actual average monthly income = (Total annual income)/(number of months for which he is employed)

Name	Average monthly Income (In Rs.)	Annual Saving (In Rs.)	Number of months for which the person was employed
A	12,000	48,000	10
B	16,000	72,000	8
C	15,000	72,000	12
D	20,000	60,000	10

Q26 What is the mean of the average monthly savings of C and D?

- (A) 2200 (B) 4400
(C) 6600 (D) 5500

Q27 Find the difference (in Rs.) between sum of average monthly expenditure and average monthly savings of 'A' and actual average monthly income of 'B'.

- (A) 12000 (B) 6000
(C) 5000 (D) 1000

Q28 Out of the given four persons whose actual average monthly income was highest?

- (A) A (B) B
(C) D (D) Both B and D

Q29 If both 'D' and 'A' were employed for the first six months of the given year, then find the difference between the amount earned by them during the first six months of the year.

- (A) Rs 48,000 (B) Rs 56,400
(C) Rs 64,000 (D) Rs 57,600



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- Q30** During the given year, 'B' worked at two different companies namely 'X' and 'Y'. If his monthly salary at 'X' and 'Y' was Rs. 30,000 and Rs. 18,000, respectively, then find the number of months for which he

worked at 'X' given that his salary is his only source of income.

- (A) 2 (B) 4
(C) 6 (D) 5



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Answer Key

Q1 (D)
Q2 (A)
Q3 (A)
Q4 (B)
Q5 (B)
Q6 (A)
Q7 (C)
Q8 (D)
Q9 (A)
Q10 (B)
Q11 (C)
Q12 (D)
Q13 (D)
Q14 (D)
Q15 (B)

Q16 49
Q17 66
Q18 1
Q19 66
Q20 715
Q21 (B)
Q22 (D)
Q23 (D)
Q24 (C)
Q25 (D)
Q26 (D)
Q27 (A)
Q28 (D)
Q29 (D)
Q30 (B)



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Hints & Solutions

Q1. Text Solution:

Profit of H1 in 2018–19 = 471

Average profit of all the hotels together in 2019–20

$$\begin{aligned} 20 \\ = \frac{531 + 501 + 322 + 251 + 41 + 42.5 + 138 + 37.5 + 123 + 7 + 40 + 28}{12} \\ = 171.833 \end{aligned}$$

$$\text{Required difference} = 471 - 171.833 = 299.167 = 300 \text{ (approx.)}$$

Q2. Text Solution:

Number of profit get by H5 in 2018–19 = 31

Number of profit get by H7 in 2018–19 = 129

Total number of profit get by H5 and H7 together in 2018–19

$$= 31 + 129 = 160$$

Number of profit get by H6 in 2019 – 20 = 42.5

Number of profit get by H8 in 2019–20 = 37.5

Total number of profit get by H6 and H8 together in 2019–20

$$= 42.5 + 37.5 = 80$$

Required ratio = 160 : 80

$$= 2 : 1$$

Q3. Text Solution:

Percentage increase

$$= \frac{251 - 229}{229} \times 100$$

$$= 9.606\%$$

$$= 9.6\%$$

Q4. Text Solution:

$$\text{H1 percentage increase} = \frac{531 - 471}{471} \times 100 = 12.7\% \quad \text{H2 percentage increase} = \frac{501 - 259}{259} \times 100 = 93.4\% \quad \text{H5 percentage increase} = \frac{41 - 31}{31} \times 100 = 32.25\% \quad \text{H8 percentage increase} = \frac{531 - 471}{471} \times 100 = 12.7\%$$

Hence, percentage increase is the second highest for H8.

Q5. Text Solution:

$$\text{H10 : } 0.38 \times 6 = 2.28$$

$$\text{H1 : } 0.35 \times 471 = 164.85$$

$$\text{H2 : } 0.45 \times 259 = 116.55$$

$$\text{H4 : } 0.55 \times 229 = 125.95$$

Q6. Text Solution:

School	%	Number of Girls
A	40	72
B	15	27
D	25	45
E	20	36

It is given that 180 students participated from school C and so the number of girls from schools A, B, D and E will be as shown above.

It is known that the ratio of the number of girls to boys in the schools A, B, D and E who participated was 1:3, 3:2, 4:3 and 5:3 in no particular order.

The ratio of girls to boys for school D must be 5:3 because if we choose any other ratio then there is no number which could be divided by 5. Let the total students in school D be s.

$$\text{So, } \frac{5}{8} \text{ of } s = 45$$

$$s = 72.$$

Number of boys who participated from school D = 72 – 45 = 27.

Q7. Text Solution:

It is known that the ratio of the number of girls to boys in the schools A,B,D and E who participated was 1:3, 3:2, 4:3 and 5:3 in no particular order.

Boys will be $\frac{3}{4}$ of the total, $\frac{2}{5}$ of the total, $\frac{3}{7}$ of the total and $\frac{3}{8}$ of the total.

It is given that the number of boys who participated from the mentioned 4 schools is 14, 24, 27 and 30 in no particular order.

For maximum value we need to have

$$\frac{3}{8} \text{ of total } 1 = 30$$

$$\text{Total } 1 = 80 \quad \text{Total } 2 = \frac{501 - 259}{259} \times 100 = 93.4\% \quad \text{H5 percentage increase} = \frac{41 - 31}{31} \times 100 = 32.25\% \quad \text{H8 percentage increase} = \frac{531 - 471}{471} \times 100 = 12.7\%$$

$$\frac{3}{7} \text{ of total } 2 = 27$$

$$\text{Total } 2 = 63$$

$$\frac{3}{4} \text{ of total } 3 = 24$$

$$\text{Total } 3 = 32$$

$$\frac{2}{5} \text{ of total } 4 = 14$$

$$\text{Total } 4 = 35$$

Maximum strength = 80 + 63 + 32 + 35 = 210 students.

Q8. Text Solution:

School	%	Number of Girls
A	40	72
B	15	27
D	25	45
E	20	36



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It is given that 180 students participated from school C and so the number of girls from schools A, B, D and E will be as shown above.

It is known that the ratio of the number of girls to boys in the schools A, B, D and E who participated was 1:3, 3:2, 4:3 and 5:3 in no particular order.

Since we do not know the particular order, we cannot definitely identify the school with the maximum participation.

Q9. Text Solution:

It is known that 80 students participated from school C. The number of girls from schools A, B, D and E will be as follows:

School	%	Number of Girls
A	40	32
B	15	12
D	25	20
E	20	16

It is also known that the ratio of the number of girls to boys in the schools A, B, D and E who participated was 1:3, 3:2, 4:3 and 5:3 in no particular order.

The ratio 5 : 3 must be of school D as there is no other number for the total girls which is a multiple of 5. If we take the ratio as 4 : 3 for D then for E we don't have any ratio because 16 is not a multiple of 5 and 3. Similarly, the ratio 3 : 2 must be of school B.

For school D, $\frac{5}{8}$ of total = 20

Total students in D = 32

Number of boys in D = 12 ($\frac{3}{8}$ of 32)

For school B, $\frac{3}{5}$ of total = 12

Total students = 20

Number of boys in B = 8

Required difference = 12 - 8 = 4.

Q10. Text Solution:

It is known that 80 students participated from school C. The number of girls from schools A, B, D and E will be as follows:

School	%	Number of Girls
A	40	32
B	15	12
D	25	20
E	20	16

It is also known that the ratio of the number of girls to boys who participated in the schools A, B, D and E was 1:3, 3:2, 4:3, and 5:3 in no particular order.

The ratio of 5:3 must be of school D as there is no other number for the total girls which is a multiple of 5. If we take the ratio as 4 : 3 for D then for E we don't have any ratio because 16 is not a multiple of 5 and 3. Similarly, the ratio of 3 : 2 must be of school B.

Let the total number of students in school B be

q.

$\frac{3}{5}$ of q = 12

q = 20

Let the total number of students in School A be p.

The ratio of girls to boys for school A can be either 1:3 or 4:3.

If the ratio is 1:3 then

$\frac{1}{4}$ of the total p is 32

Therefore, p = 128

Number of boys from A = 128 - 32 = 96

The required ratio of the number of boys from A to the number of students from B

= 96 : 20 = 24 : 5

If the ratio is 4 : 3 then

$\frac{4}{7}$ of the total p is 32

Therefore, p = 56

Number of boys from A = 56 - 32 = 24

The required ratio of the number of boys from A to the number of students from B

= 24 : 20 = 6 : 5.

Q11. Text Solution:

30 % Alcohol sanitizers sold in U.P. = $2100 \times \frac{85}{100} \times \frac{9}{17} = 945$ 0 % Alcohol sanitizers sold
Required difference = 945 - 400 = 545

Q12. Text Solution:

Total number of 70% Alcohol sanitizers sold by all the five states together

= $2100 \times \frac{15}{100} + 4300 \times \frac{35}{100} + 3600 \times \frac{25}{100} + 800 \times \frac{45}{100} + 1300 \times \frac{20}{100} = 315 + 1505 + 90$

Required average = $\frac{3340}{5} = 668$



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Q13. Text Solution:

States	Sanitizers that can be sold	70% Alcohol sanitizers sold (in %)	30% Alcohol : 0% Alcohol sanitizers	30% Alcohol sanitizers sold (in %)
U.P.	2300	15%	9:8	$85\% \times 9/17 = 45\%$
West Bengal	4500	35%	5:8	$65\% \times 5/13 = 25\%$
Telangana	3800	25%	4:5	$75\% \times 4/9 = 100/3\%$
Gujarat	1000	45%	5:3	$55\% \times 5/8 = 275/8\%$
Delhi	1500	20%	8:5	$80\% \times 8/13 = 640/13\%$

So, we can infer that the number of 30% Alcohol sanitizers sold in the states are:

$$\text{U.P.} : 45\% \times (2300 - 200) = 945$$

$$\text{West Bengal: } 25\% \times (4500 - 200) = 1075$$

$$\text{Telangana: } (3800 - 200) \times 75\% \times \frac{4}{9} = 1200$$

$$\text{Gujarat: } (1000 - 200) \times 55\% \times \frac{5}{8} = 275$$

$$\text{Delhi: } (1500 - 200) \times 80\% \times \frac{8}{13} = 640$$

$$\text{Hence the average is } \frac{945 + 1075 + 1200 + 275 + 640}{5} = 827.$$

Q14. Text Solution:

Total 70% Alcohol and 0% Alcohol sanitizers sold in West Bengal

$$= 4300 \times \frac{35}{100} + 4300 \times \frac{65}{100} \times \frac{8}{13} = 1505 + 1720 = 3225$$

Total number of 70% Alcohol and 30% Alcohol sanitizers sold in Gujarat

$$= 800 \times \frac{45}{100} + 800 \times \frac{55}{100} \times \frac{5}{8} = 360 + 275 = 635$$

Required percentage

$$= \frac{3225 - 635}{635} \times 100 = \frac{2590}{635} \times 100 = 407.87\%$$

Q15. Text Solution:

0% Alcohol sanitizers sold in Telangana and Gujarat together

$$= 3600 \times \frac{75}{100} \times \frac{5}{9} + 800 \times \frac{55}{100} \times \frac{3}{8} = 1500 + 165 = 1665$$

30% Alcohol sanitizers sold in West Bengal and Telangana together

$$= 4300 \times \frac{65}{100} \times \frac{5}{13} + 3600 \times \frac{75}{100} \times \frac{4}{9} = 1075 + 1200 = 2275$$

$$\text{Required Ratio} = \frac{1665}{2275} = \frac{333}{455}.$$

Q16. Text Solution:

We can make a table on the basis of the information given,

	Bengali	Marathi	Spanish	English	Total
Total number of books published	400	500	200	300	1400
Number of notebooks	60% of 400 = 240	80% of 500 = 400	40% of 200 = 80	70% of 300 = 210	930
Number of practice books	400 - 240 = 160	500 - 400 = 100	200 - 80 = 120	300 - 210 = 90	470
Number of notebooks	50% of 240 = 120	37.5% of 400 = 150	25% of 80 = 20	40% of 210 = 84	374
Number of notebooks	240 - 120 = 120	400 - 150 = 250	80 - 20 = 60	210 - 84 = 126	556
Number of Practice books	12.5% of 160 = 20	40% of 400 = 160	60% of 80 = 48	30% of 210 = 63	311

that were "Good"	120	150		84	
Number of notebooks that were "Not Good"	240 - 120 = 120	= 150	= 60	210 - 84 = 126	= 556
Number of Practice books that were "Not Good"	12.5% of 20 = 160 - 20 = 140	40% of 40 = 160 - 40 = 120	60% of 80 = 160 - 80 = 80	30% of 210 = 160 - 210 = 63	= 159
Number of Practice books that were "Good"	160 - 140 = 20	= 40 = 60	= 72 = 48	210 - 126 = 84	= 311
Total number of books that received "Good" feedback by the students					
Required percent					
= $\frac{685}{1400} \times 100 = 48.9\%$					
= 49 (approx.)					

Q17. Text Solution:

We can make a table on the basis of the information given,

	Bengali	Marathi	Spanish	English	Total
Total number of books published	400	500	200	300	1400
Number of notebooks	60% of 400 = 240	80% of 500 = 400	40% of 200 = 80	70% of 300 = 210	930
Number of practice books	400 - 240 = 160	500 - 400 = 100	200 - 80 = 120	300 - 210 = 90	470
Number of notebooks	50% of 240 = 120	37.5% of 400 = 150	25% of 80 = 20	40% of 210 = 84	374
Number of notebooks	240 - 120 = 120	400 - 150 = 250	80 - 20 = 60	210 - 84 = 126	556
Number of Practice books	12.5% of 160 = 20	40% of 400 = 160	60% of 80 = 48	30% of 210 = 63	= 159
Number of Practice books	160 - 20 = 140	= 40 = 60	= 72 = 48	210 - 126 = 84	= 311



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that were				
"Good"				

$$\text{Required percent} = \frac{930}{1400} \times 100 = 66.4\%$$

= 66 (approx.)

Q18. Text Solution:

We can make a table on the basis of the information given,

	Bengali	Marathi	Spanish	English	Total
Total number of books published	400	500	200	300	1400
Number of notebooks that were "Good"	60% of 400 = 240	80% of 500 = 400	40% of 200 = 80	70% of 300 = 210	930
Number of practice books that were "Good"	400 - 240 = 160	500 - 400 = 100	200 - 80 = 120	300 - 210 = 90	470
Number of notebooks that were "Not Good"	50% of 240 = 120	37.5% of 400 = 150	25% of 80 = 20	40% of 210 = 84	374
Number of Practice books that were "Not Good"	240 - 120 = 120	400 - 250 = 150	80 - 60 = 20	210 - 126 = 84	556
Number of Practice books that were "Good"	12.5% of 160 = 20	40% of 100 = 40	60% of 120 = 72	30% of 90 = 27	159
	160 - 20 = 140	100 - 40 = 60	120 - 72 = 48	90 - 27 = 63	311

Total number of Bengali language books that received "Good" feedback by the students = $120 + 140 = 260$

Total number of Marathi language books that received "Good" feedback by the students = $150 + 60 = 210$

Total number of Spanish language books that received "Good" feedback by the students = $20 + 48 = 68$

Total number of English language books that received "Good" feedback by the students = $84 + 63 = 147$

We can observe that only for Bengali language books, books have received "Good" feedback for at least 60% of the total books published in that language.

Q19. Text Solution:

We can make a table on the basis of the information given,

	Bengali	Marathi	Spanish	English	Total
Total number of books published	400	500	200	300	1400
Number of notebooks	60% of 400 = 240	80% of 500 = 400	40% of 200 = 80	70% of 300 = 210	930
Number of practice books	400 - 240 = 160	500 - 400 = 100	200 - 80 = 120	300 - 210 = 90	470
Number of notebooks that were "Good"	50% of 240 = 120	37.5% of 400 = 150	25% of 80 = 20	40% of 210 = 84	374
Number of notebooks that were "Not Good"	240 - 120 = 120	400 - 150 = 250	80 - 20 = 60	210 - 84 = 126	556
Number of Practice books that were "Not Good"	12.5% of 160 = 20	40% of 100 = 40	60% of 120 = 72	30% of 90 = 27	159
Number of Practice books that were "Good"	160 - 20 = 140	100 - 40 = 60	120 - 72 = 48	90 - 27 = 63	311

$$\text{Required percent} = \frac{311}{470} \times 100 = 66.2\%$$

= 66 (approx.)

Q20. Text Solution:

We can make a table on the basis of the information given,

	Bengali	Marathi	Spanish	English	Total
Total number of books published	400	500	200	300	1400
Number of notebooks	60% of 400 = 240	80% of 500 = 400	40% of 200 = 80	70% of 300 = 210	930
Number of practice books	400 - 240 = 160	500 - 400 = 100	200 - 80 = 120	300 - 210 = 90	470
Number of notebooks that were "Good"	50% of 240 = 120	37.5% of 400 = 150	25% of 80 = 20	40% of 210 = 84	374
Number of notebooks that were "Not Good"	240 - 120 = 120	400 - 150 = 250	80 - 20 = 60	210 - 84 = 126	556



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that were "Not Good"	120	250		126	
Number of Practice books that were "Not Good"	12.5% of 160 = 20	40% of 100 = 40	= 60% of 120 = 72	30% of 90 = 27	= 159
Number of Practice books that were "Good"	160 - 20 = 140	100 - 40 = 60	- 120 - 72 = 48	- 90 - 27 = 63	- 311

Total number of Books that received "Not Good" feedback by the students = $556 + 159 = 715$.

Q21. Text Solution:

$$62.5\% \rightarrow \frac{5}{8}$$

$$\text{No. of Assistant Teachers} = 2000 \times \frac{5}{8} = 1250$$

$$\text{No. of Associate Teachers} = 750 \times \frac{3}{5} = 450$$

$$\text{No. of Teachers} = 750 \times \frac{2}{5} = 300$$

If the percentage of married among Associate Teachers section is $x\%$, then

$$1250 \times 40\% + 450 \times \% + 300 \times 71\% = 2000 \times 50.5\% \quad x = 66\%$$

Associate Teachers, who are married

$$= 450 \times \frac{66}{100} = 297$$

Now out of 297 people, $66\frac{2}{3}\%$ are female so the

rest will be male i.e., $33\frac{1}{3}\%$

$$297 \times \frac{1}{3} = 99$$

$$\text{Total no. females} = 450 \times \frac{60}{100} = 270$$

$$\text{No. of females who are married} = 297 \times \frac{2}{3} = 198$$

$$\text{No. of females who are unmarried} = 270 - 198 = 72$$

Therefore, the answer would be $99 - 72 = 27$.

Q22. Text Solution:

$$62.5\% = \frac{5}{8}$$

$$\text{No. of Assistant Teachers} = 2000 \times \frac{5}{8} = 1250$$

If the percentage of Female Assistant Teachers is $x\%$, then

$$1250x\% + 450 \times 0.6 + 300 \times 0.55 = 2000 \times 0.48 \quad 1250x\% = 960 - 165 - 270 \quad x = 42\%$$

No. of females who are Assistant Teachers

$$= 1250 \times \frac{42}{100} = 525$$

Out of 525 females, 60% are married

$$= 525 \times \frac{60}{100} = 315$$

Total no. of married members

$$= 1250 \times \frac{40}{100} = 500$$

Therefore, No. of males who are married

$$= 500 - 315 = 185.$$

Q23. Text Solution:

$$62.5\% \rightarrow \frac{5}{8}$$

$$\text{No. of Assistant Teachers} = 2000 \times \frac{5}{8} = 1250$$

$$\text{No. of Associate Teachers} = 750 \times \frac{3}{5} = 450$$

$$\text{No. of Teachers} = 750 \times \frac{2}{5} = 300$$

If the percentage of Female Assistant Teachers is $x\%$, then

$$1250x\% + 450 \times 0.6 + 300 \times 0.55 = 2000 \times 0.48 \quad 1250x\% = 960 - 165 - 270 \quad x = 42\% \\ \text{So, the answer would be } (100 - 42) = 58\%$$

Q24. Text Solution:

$$62.5\% \rightarrow \frac{5}{8}$$

$$\text{No. of Assistant Teachers} = 2000 \times \frac{5}{8} = 1250$$

$$\text{No. of Associate Teachers} = 750 \times \frac{3}{5} = 450$$

$$\text{No. of Teachers} = 750 \times \frac{2}{5} = 300$$

Number of Married Assistant Teachers
= $1250 \times 40\% = 500$

Number of Married Teachers = $300 \times 71\% = 213$

Total number of Assistant Teachers and Teachers
= $1250 + 300 = 1550$

% of married faculties among Assistant

Teachers and Teachers are

$$= \frac{500 + 213}{1550} \times 100 = 46\%.$$

Q25. Text Solution:

$$62.5\% = 5/8$$

$$\text{No. of Assistant Teachers} = 2000 \times \frac{5}{8} = 1250$$

$$\text{No. of Associate Teachers} = 750 \times \frac{3}{5} = 450$$

$$\text{No. of Teachers} = 750 \times \frac{2}{5} = 300$$

Let the percentage of married members in Associate Teachers is $Y\%$.

$$1250 \times 40\% + 450 \times Y\% + 300 \times 71\% = 2000 \times 50.5\%$$

$$Y = 66\%.$$

Q26. Text Solution:

For 'A':

Average monthly income = Rs. 12,000

Amount earned by 'A' during the year

$$= 12000 \times 12 = \text{Rs. } 144,000$$

Average amount saved by 'A' per month

$$= 48000 \div 12 = \text{Rs. } 4,000$$

Actual average monthly income of 'A'

$$= 144,000 \div 10 = \text{Rs. } 14,400$$

Amount spent by 'A' during the year

$$= 144000 - 48000 = \text{Rs. } 96,000$$

Average monthly expenditure of 'A'

$$= 96000 \div 12 = \text{Rs. } 8,000$$

Similarly,



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Name	Average monthly income (in Rs.)	Actual average monthly income (in Rs.)	Average monthly expenditure (in Rs.)	Average monthly saving (in Rs.)
A	12,000	14,400	8000	4000
B	16,000	24,000	10000	6000
C	15,000	15,000	9000	6000
D	20,000	24,000	15000	5000

$$\text{Required mean} = \frac{6000 + 5000}{2} = 5500$$

Q27. Text Solution:

Average monthly income = Rs. 12,000
 Amount earned by 'A' during the year = $12000 \times 12 = \text{Rs. } 1,44,000$
 Average amount saved by 'A' per month = $48000 \div 12 = \text{Rs. } 4,000$
 Actual average monthly income of 'A' = $1,44,000 \div 10 = \text{Rs. } 14,400$
 Amount spent by 'A' during the year = $144000 - 48000 = \text{Rs. } 96,000$

Average monthly expenditure of 'A' = $96000 \div 12 = \text{Rs. } 8,000$

Similarly,

Name	Average monthly income (in Rs.)	Actual average monthly income (in Rs.)	Average monthly expenditure (in Rs.)	Average monthly saving (in Rs.)
A	12,000	14,400	8000	4000
B	16,000	24,000	10000	6000
C	15,000	15,000	9000	6000
D	20,000	24,000	15000	5000

$$\text{Required difference} = 24000 - (8000 + 4000) = 24000 - 12000 = \text{Rs. } 12,000$$

Hence, option A is the correct answer.

Q28. Text Solution:

For 'A':
 Average monthly income = Rs. 12,000
 Amount earned by 'A' during the year = $12000 \times 12 = \text{Rs. } 1,44,000$
 Average amount saved by 'A' per month = $48000 \div 12 = \text{Rs. } 4,000$
 Actual average monthly income of 'A' = $1,44,000 \div 10 = \text{Rs. } 14,400$
 Amount spent by 'A' during the year = $144000 - 48000 = \text{Rs. } 96,000$
 Average monthly expenditure of 'A' = $96000 \div 12 = \text{Rs. } 8,000$

Similarly,

Name	Average monthly income (in Rs.)	Actual average monthly income (in Rs.)	Average monthly expenditure (in Rs.)	Average monthly saving (in Rs.)
A	12,000	14,400	8000	4000

B	16,000	24,000	10000	6000
C	15,000	15,000	9000	6000
D	20,000	24,000	15000	5000

We can see in the given table that 'B' and 'D' have the highest monthly income i.e. Rs. 24,000

Q29. Text Solution:

For 'A':

Average monthly income = Rs. 12,000
 Amount earned by 'A' during the year = $12000 \times 12 = \text{Rs. } 1,44,000$
 Average amount saved by 'A' per month = $48000 \div 12 = \text{Rs. } 4,000$
 Actual average monthly income of 'A' = $1,44,000 \div 10 = \text{Rs. } 14,400$
 Amount spent by 'A' during the year = $144000 - 48000 = \text{Rs. } 96,000$
 Average monthly expenditure of 'A' = $96000 \div 12 = \text{Rs. } 8,000$

Similarly,

Name	Average monthly income (in Rs.)	Actual average monthly income (in Rs.)	Average monthly expenditure (in Rs.)	Average monthly saving (in Rs.)
A	12,000	14,400	8000	4000
B	16,000	24,000	10000	6000
C	15,000	15,000	9000	6000
D	20,000	24,000	15000	5000

Amount earned by 'A' in first 6 months

$$= 6 \times 14,400 = \text{Rs. } 86,400$$

Amount earned by 'D' in first 6 months

$$= 6 \times 24000 = \text{Rs. } 1,44,000$$

$$\text{Required difference} = 144000 - 86400$$

$$= \text{Rs. } 57,600$$

Q30. Text Solution:

For 'A':

Average monthly income = Rs. 12,000
 Amount earned by 'A' during the year = $12000 \times 12 = \text{Rs. } 1,44,000$
 Average amount saved by 'A' per month = $48000 \div 12 = \text{Rs. } 4,000$
 Actual average monthly income of 'A' = $1,44,000 \div 10 = \text{Rs. } 14,400$
 Amount spent by 'A' during the year = $144000 - 48000 = \text{Rs. } 96,000$
 Average monthly expenditure of 'A' = $96000 \div 12 = \text{Rs. } 8,000$

Similarly,

Name	Average monthly income (in Rs.)	Actual average monthly income (in Rs.)	Average monthly expenditure (in Rs.)	Average monthly saving (in Rs.)
A	12,000	14,400	8000	4000
B	16,000	24,000	10000	6000



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C	15,000	15,000	9000	6000
D	20,000	24,000	15000	5000

Let the number of months for which 'B' worked at 'X' be 'm'

So, number of months for which 'B' worked at 'Y' = '8 – m'

$$\{m \times (30000) + (8 - m) \times 18000\} \div 8 = 24000$$

$$\text{Or, } 30000m + 144000 - 18000m = 192000$$

$$\text{Or, } 12000m = 48000$$

$$\text{So, } m = 4$$

Therefore, 'B' worked at 'X' for 4 months.



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