

DATA INTERPRETATION-III

PROBLEMS

Directions (Q. 1-5) Study the following table carefully and answer accordingly:

The given table represents the number of candidates appeared and qualified during 2001 to 2006 from 6 states.

Year → State ↓	2001		2002		2003		2004		2005		2006	
	A	Q	A	Q	A	Q	A	Q	A	Q	A	Q
A	5600	840	7250	925	8250	876	7856	824	8349	932	7964	853
B	7200	864	8100	840	7865	792	8425	896	7658	878	8107	940
C	4850	588	6450	650	7120	685	7763	735	6984	792	7058	827
D	6325	745	7185	795	8545	842	6987	898	5896	685	6754	746
E	5200	640	6225	685	7962	934	7645	888	7389	843	7766	812
F	6500	820	7380	860	6895	788	7844	762	8105	798	8934	911

A – Appeared, Q – Qualified

1. In which of the given years the number of candidates appeared from state D has maximum percentage of qualified candidates?

- a) 2002 b) 2005 c) 2003 d) 2004 e) None of these

ANSWER: d

Only in 2003 the qualified students (842) is less than 10% of appeared students (i.e. $\frac{10}{100} \times 8545 = 854.5$). So 2003 has lowest percentage of qualified candidates.

The qualified candidates in 2001 and 2006 are almost same (745 and 746) but the appeared candidates are more in 2006 than in 2001. So 2006 can't have maximum percentage in comparison with 2001. From 2002 to 2004 the number of qualified candidates increased but the number of appeared candidates decreased. Hence 2002 can't have maximum percentage in comparison with 2004.

So one of 2001, 2004 and 2005 will have maximum percentage.

Year	Qualified
2001	$\frac{745}{6325} \times 100 < 12\%$
2004	$\frac{898}{6987} \times 100 > 12\%$
2005	$\frac{685}{5896} \times 100 < 12\%$

So 2004 has maximum percentage of qualified candidates.

2. What is the difference between total candidates appeared in the six states in the year 2004 and 2003?
a) 6915 b) 10692 c) 10962 d) 9615 e) None of these

ANSWER: c

Difference of total candidates appeared in 2003 and 2001
(2003 - 2001) = (8250 - 5600) + (7865 - 7200) + (7120 - 4850) + (8545 - 6325) +
(7962 - 5200) + (6895 - 6500)
= 2650 + 665 + 2270 + 2220 + 2762 + 395
= 10,962

3. The increase/decrease in the percentage of the qualified to the appeared candidates in the state B in 2001 to 2002 is
a) 1.25 b) 2.25 c) 2.50 d) 1.50 e) 2.0

ANSWER: d

Qualified to appeared candidates in state B in 2001 = $\frac{864}{7200} \times 100 = 12\%$

Qualified to appeared candidates in state B in 2002 = $\frac{840}{8100} \times 100 = 10.37\%$

Required difference = 12% - 10.37% = 1.63% \cong 1.5%

4. What is the difference between total qualified candidates in six states in the year 2003 and 2006?
a) 217 b) 172 c) 168 d) 226 e) None of these

ANSWER: b

Difference between total qualified candidates in 2003 and 2006 is given by
(2006 - 2003) \rightarrow (853 - 876) + (940 - 792) + (827 - 685) + (746 - 842) + (812 - 934)
+ (911 - 788)
= - 23 + 148 + 142 - 96 - 122 + 123
= 172

5. What is per cent of the total qualified candidates to the total number of appeared candidates among all the six states in 2006 is?
a) 15 b) 11 c) 19 d) 13 e) 12

ANSWER: b

Total qualified candidates in 2006 = 5089

Total appeared candidates in 2006 = 46583

Required percentage = $\frac{5089}{46583} \times 100 = 10.9 \cong 11\%$

Directions (Q. 6-10) Study the following table carefully to answer these questions.
Percentage of marks obtained by six students in six subjects

Student	Subjects					
	A (Out of 60)	B (Out of 40)	C (Out of 80)	D (Out of 50)	E (Out of 120)	F (Out of 75)
P	80	65	58	68	75	87
Q	55	70	67	74	88	78
R	74	54	72	84	62	76
S	68	76	82	56	72	64
T	75	68	64	72	80	72
U	82	78	75	67	68	82

6. What is the total marks obtained by Student R in Subjects B, D and E?
 a) 200 b) 138 c) 168 d) 156 e) None of these

ANSWER: b

$$\begin{aligned} \text{Total marks obtained by R in B, D and E together} &= \\ \frac{54}{100} \times 40 + \frac{84}{100} \times 50 + \frac{62}{100} \times 120 &= \\ &= \left(\frac{54 + 186}{100} \right) \times 40 + \frac{84}{100} \times 50 \\ &= 96 + 42 = 138 \end{aligned}$$

7. What is the average marks obtained by all the students in Subject 'C'? (rounded off to the nearest integer)
 a) 56 b) 58 c) 54 d) 70 e) None of these

ANSWER: a

$$\begin{aligned} \text{Average percentage of marks obtained by all students in C} &= \\ &= \frac{(58 + 67 + 72 + 82 + 64 + 75)}{6} = \frac{418}{6} \cong 70\% \end{aligned}$$

$$\therefore \text{Average marks obtained by all students in C} = \frac{70}{100} \times 80 = 56$$

8. What is the average percentage of marks obtained by all the students in Subject 'A'?
 a) $73\frac{2}{3}$ b) $43\frac{2}{5}$ c) $72\frac{1}{3}$ d) $48\frac{3}{5}$ e) None of these

ANSWER: c

Average percentage of marks obtained by all the students in A

$$= \frac{(80 + 55 + 74 + 68 + 75 + 82)}{6} = \frac{434}{6} = \frac{217}{3} = 72\frac{1}{3}$$

9. Approximately what is the overall percentage of marks obtained by Q in all the Subjects?

- a) 77 b) 72 c) 78 d) 70 e) 75

ANSWER: e

Total marks obtained by Q

$$= \frac{55}{100} \times 60 + \frac{70}{100} \times 40 + \frac{67}{100} \times 80 + \frac{74}{100} \times 50 + \frac{88}{100} \times 120 + \frac{78}{100} \times 75$$

$$= 33 + 28 + 53.6 + 37 + 105.6 + 58.5$$

$$= 315.7$$

Overall maximum marks = 60 + 40 + 80 + 50 + 120 + 75 = 425

∴ Overall percentage = $\frac{315.7}{425} \times 100 \cong 75$

10. What is the total marks obtained by all the students together in Subject E?

- a) 522 b) 488 c) 445 d) 534 e) None of these

ANSWER: d

Total percentage of marks obtained by all in E = 75 + 88 + 62 + 72 + 80 + 68 = 445

∴ Total marks obtained by all the students in E = $\frac{445}{100} \times 120 = 89 \times 6 = 534$

Directions (Q. 11-15): Study the following table carefully to answer the questions.

Rate of Interest per cent per annum offered by Five Companies on Deposits under Different Schemes

Company Scheme	A	B	C	D	E
I	8.5	9.0	8.0	8.5	9.0
II	9.5	8.5	9.0	9.0	8.5
III	8.0	8.0	7.5	8.5	8.5
IV	10.0	9.5	10.5	9.5	10.0

11. Mr. X deposited an amount in Scheme II with Company C for two years. After that he withdrew the amount and reinvested only the principal amount in Scheme IV

of Company B for two years. Total amount of simple interest accrued from the two Schemes is ` 14,800. What was the principal amount?

- a) ` 48,000 b) ` 42,000 c) ` 40,000 d) Cannot be determined e) None of these

ANSWER: c

Interest paid by C on Scheme II for 2 years = $2 \times 9 = 18\%$

Interest paid by B on Scheme IV for 2 years = $2 \times 9.5 = 19\%$

Total interest received by X = $18\% + 19\% = 37\%$

As per data 37% of principal = 14,800

$$\therefore \text{Principal} = \frac{14800 \times 100}{37} = 40,000$$

12. Company E offers compound interest under Scheme I and Company A offers simple interest under Scheme IV. What will be the difference between the interest earned under the Scheme I of Company E and Scheme IV of Company A respectively in two years on an amount of ` 1.2 lakhs?

- a) ` 1,428 b) ` 1,328 c) ` 1,528 d) ` 1,548 e) None of these

ANSWER: a

Interest offered by E on Scheme I for two years = $\left(9 + 9 + \frac{9 \times 9}{100}\right)\% = 18.81\%$

Interest offered by A on Scheme IV for two years = $10 + 10 = 20\%$

Difference of above two = $20\% - 18.81\% = 1.19\%$

Difference of above two on an amount of ` 1.2 lakhs = $\frac{1.19}{100} \times 120000 = ` 1428$

13. Company D offers compound interest under Scheme II and simple interest under Scheme IV. Abhijit invested ` 25,000 with this company under Scheme IV and after one year switched over to Scheme II along with the interest for one more year. What is the total amount he will get at the end of two years?

- a) ` 28,939.25 b) ` 29,838.75 c) ` 31,748.25 d) ` 31,738.75 e) None of these

ANSWER: b

Abhijit invests ` 25000 in Scheme IV for one year and total amount in Scheme II for

one more year. So total interest he gets = $9.5 + 9 + \frac{9.5 \times 9}{100} = 19.355\%$

Total amount he gets = $25000 + \frac{19.355}{100} \times 25000 = ` 29,838.75$

14. Abhishek invested an amount of ` 45,000 for two years with Company B under Scheme III which offers compound interest and Jeevan invested equal amount for two years with Company C under Scheme IV which offers simple interest. Who earned more interest and how much?

- a) Abhishek, ` 1,875 b) Jeevan, ` 1,875 c) Abhishek, ` 1,962 d) Jeevan, ` 1,962
e) None of these

ANSWER: d

$$\text{Interest received by Abhishek from B under Scheme III} = 8 + 8 + \frac{8 \times 8}{100} = 16.64\%$$

$$\text{Interest received by Jeevan from C under Scheme IV} = 10.5 + 10.5 = 21\%$$

$$\begin{aligned} \text{So Jeevan gets more interest and the value is } (21 - 16.64)\% \text{ of } 45,000 &= \\ \frac{4.36}{100} \times 45000 &= \\ &= \text{` } 1962 \end{aligned}$$

15. Mr. Lal invested ` 30,000 in Company A under Scheme II which offers simple interest and ` 48,000 in Company D under Scheme II which offers compound interest. What will be the total amount of interest earned by Mr. Lal in two years?

a) ` 14,728.80 b) ` 17,428.50 c) ` 14,827.70 d) ` 16,728.20 e) None of these

ANSWER: a

$$\text{Interest received by Lal from A under Scheme III} = 9.5 + 9.5 = 19\%$$

$$\text{Interest received by Lal from B under Scheme II} = 9 + 9 + \frac{9 \times 9}{100} = 18.81\%$$

$$\begin{aligned} \text{So total interest received by Lal} &= \frac{19}{100} \times 30000 + \frac{18.81}{100} \times 48000 \\ &= 5700 + 9028.8 = 14728.8 \end{aligned}$$