

MAY 2015

**P/ID 77719/MBN2D/
MBS2D**

Time : Three hours

Maximum : 100 marks

SECTION A — (10 × 3 = 30 marks)

Answer any TEN questions.

1. Differentiate diagram and graph.
2. Define mean.
3. What do you mean by trend?
4. Define random sampling.
5. Define limit.
6. What do you mean by range?
7. Distinguish between skewness and dispersion.
8. What is scatter diagram?
9. Define secondary data.
10. Distinguish between censuses and sample.
11. What is meant by function?
12. Define event.

SECTION B — (5 × 6 = 30 marks)

Answer any FIVE questions.

13. Discuss the several steps involved in quantitative classification.

14. Calculate mean from the following data :

Mid 1 2 3 4 5 6 7 8 9
pointer :

Frequency : 2 60 101 152 205 155 79 40 1

15. What is meant by correlation? What are the properties of the coefficient of correlation?

16. If $A = \begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}$ $B = \begin{bmatrix} 7 & 6 & 3 \\ 1 & 4 & 5 \end{bmatrix}$ find the matrix $2A - 3B$.

17. A bag contains 7 red, 12 white and 4 green balls. What is the probability that :

- (a) 3 balls drawn are all white and
- (b) 3 balls drawn are one of each colour?

18. From the chain base index number given below, prepare fixed base index number.

1997 1998 1999 2000 2001 2002
92 102 104 98 103 101

If the base at 1997 is taken as 100, the index number for 1984 is 102.

19. Explain different types of non-probability sampling techniques?

20. Evaluate $\lim_{x \rightarrow 1/2} \frac{4x^2 - 1}{2x - 1}$.

SECTION C — (2 × 20 = 40 marks)

Answer any TWO questions.

21. Calculate standard deviation for the following data :

Class interval :	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency :	6	5	15	10	5	4	3	2

22. Calculate the coefficient of correlation and obtain the linear of regression for the following data :

X: 1 2 3 4 5 6 7
Y: 9 8 10 12 11 13 14

Obtain an estimate of 'y' which should correspond to the average $x = 6.2$.

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23. Drug was administered to 500 people out of a total of 800 included in the sample to test its efficacy against typhoid. The results are given below :

	Typhoid	No typhoid	Total
Drug	200	300	500
No drug	280	20	300
Total	480	320	800

Using Chi-square test. Check whether the drug has effect against typhoid.

24. A firm has the current sales of Rs. 50,000 per month. The firm wants to embark on a certain advertising campaign that will increase the sales by 2% per month (compounded continuously) over the period of the campaign which is 12 months. Find the total increases in sales as a result of the campaign. Use calculus.