

MAY 2013

**P/ID 77719/
MBN2D**

Time : Three hours

Maximum : 100 marks

SECTION A — (10 × 3 = 30 marks)

Answer any TEN questions.

All questions carry equal marks.

1. What is central tendency?
2. What is standard deviation?
3. Define range.
4. Define matrix.
5. What is wholesale index number?
6. What is Baye's theorem?
7. What is convenience sampling?
8. Define calculus.
9. What is derivative?
10. What is meant by function?
11. What is regression?
12. What do you mean by aggregative index number?

SECTION B — (5 × 6 = 30 marks)

Answer any FIVE questions.

All questions carry equal marks.

13. Plot a graph to represent the following data in a suitable manner :

Year :	1920	1921	1922	1923	1924	1925	1926	1927
Imports (000 mols) :	400	450	560	620	580	460	500	540
Imports (000 Rs) :	220	235	385	420	420	380	360	400

14. Calculate the mean deviation (from mean) of the following data

Marks : 0–10 10–20 20–30 30–40 40–50

No. of students : 5 8 15 16 6

15. Discuss briefly the purpose served by tabulation of statistical data. State the requirements of a good statistical table.

16. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 0 \\ 2 & -3 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & -1 \\ 0 & 1 \end{bmatrix}$ show that $A(B + C) = AB + AC$.

17. There are 5 white and 7 red balls in a bag. A ball is drawn and then replaced. What is the probability that a white and a red ball are drawn in that order?
18. In the problem of construction of an index number of prices. Discuss the methods used for types of averages to be used and selection of the base period.
19. What are the components of a time series? Show how a time series is built up from these components, using an example.
20. A function is defined as below :

$$f(x) = x \quad \text{when } 0 < x < 1$$
$$= 2 - x \quad \text{when } x \geq 1$$

Show that it is continuous at $x = 1$.

SECTION C — ($2 \times 20 = 40$ marks)

Answer any TWO questions.

All questions carry equal marks.

21. In a bolt factory machines A, B, C manufacture respectively 25%, 35%, and 40% of the total of their output 5,4,2 percents are defective bolts. A bolt is drawn at random from the product and is found to be defective. What are the probabilities that it was manufactured by machines A, B, and C?

22. What is sampling? Give its objects and name the laws which form the basis of sampling. Describe the different methods of sampling known to you. Illustrate your answer with suitable examples.
 23. Explain the different types of matrices and its operations.
 24. Explain the concept of regression and point out its usefulness in dealing with business problems.
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