

Roll No. ....

Total Pages : 2

MMS/D-12

13569

BUSINESS STATISTICS

Paper : CP-102

Time : Three Hours]

[Maximum Marks : 70

Note : Attempt any *eight* questions from Part A of 5 marks each and *three* questions of 10 marks each from Part B.

**PART-A**

1. What is the importance of Probability in business decision-making ?
2. State the Multiplicative theorem of Probability.
3. Explain Bayes's theorem.
4. What do you mean by Non-sampling error ?
5. What is Central Limit Theorem ?
6. Define Statistical estimation.
7. In test of hypothesis, how  $p$ -value is interpreted ?
8. Explain the concept of Standard error.
9. What do you understand by Non-parametric methods?
10. Explain how hypothesis testing is useful to decision-makers.

**PART-B**

11. How does a Normal distribution differ from Binomial distribution ? What are the important properties of normal distribution and how are they useful in business decision-making ?

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[P.T.O.]

12. How would you plan a survey to study the employment pattern of MBA students of your university? Draft a Questionnaire giving at least 10 questions.
13. A production supervisor is interested in knowing if number of breakdowns on four machines is independent of the shift using the machines. Test this hypothesis based on the following sample information :

Shift	Machine			
	A	B	C	D
Morning	15	10	18	12
Evening	12	8	15	10

14. A company manufactures tyres. A quality control engineer is responsible to ensure that the tyres turned out are fit for use up to 40,000 km. He monitors the life of the output from the production process. From each of the 10 batches of 900 tyres, he has tested 5 tyres and recorded the following data, with  $\bar{x}$  and  $\bar{R}$  measured in thousands of km.

Batch	1	2	3	4	5	6	7	8	9	10
$\bar{x}$	40.2	43.1	42.4	39.8	43.1	41.5	40.7	39.2	38.9	41.9
$\bar{R}$	1.3	1.5	1.8	0.6	2.1	1.4	1.6	1.1	1.3	1.5

Construct an  $\bar{x}$  chart using the above data. Do you think that the production process is in control ? Explain.

15. Write a detailed note on SPSS for the purpose of descriptive analysis of the data.

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