

FACULTY OF MANAGEMENT
MBA (CBCS) I - Semester Examination, March / April 2023
Subject: Statistics for Management
Paper No. MB – IV

Time: 3 Hours

Max. Marks: 70

PART – A**Note: Answer all the questions.****(5 x 4 = 20 Marks)**

1. What is a conditional probability?
2. What is random variable and its types?
3. What is Standard error?
4. What are properties of the t-distribution?
5. Explain the concept of partial correlation?

PART – B**Note: Answer all the questions.****(5 x 10 = 50 Marks)**

6. (a) Explain the theorems of Addition and Multiplication theorems on probability?
(OR)
 (b) Write the types of measures of central tendency and explain their properties?
7. (a) (i) Explain about binomial distribution?
 (ii) Find the probability of getting at least 5 times head-on tossing and unbiased coin for 6 times by using the binomial distribution.
(OR)
 (b) (i) What is Standard Normal Distribution?
 (ii) The speeds of cars are measured using a radar unit, on a motorway. The speeds are normally distributed with a mean of 90 km/hr and a standard deviation of 10 km/hr. What is the probability that a car selected at chance is moving at more than 100 km/hr?
8. (a) What is sample size and how to determine the sample size?
(OR)
 (b) What is Hypotheses and explain its types with suitable examples?
9. (a) In an experiment to study whether smoking affects health, the following data were collected. Test the hypothesis that smoking does not affect health.

| | Light Smoking | Moderate Smoking | Heavy Smoking |
|---------------------|---------------|------------------|---------------|
| Health affected | 16 | 29 | 35 |
| Health not affected | 36 | 23 | 17 |

(OR)

(b) Calculate a paired t test for the following data:

| Subject | Score 1 | Score 2 |
|---------|---------|---------|
| 1 | 3 | 20 |
| 2 | 3 | 13 |
| 3 | 3 | 13 |
| 4 | 12 | 20 |
| 5 | 15 | 29 |
| 6 | 16 | 32 |
| 7 | 17 | 23 |
| 8 | 19 | 20 |
| 9 | 23 | 25 |
| 10 | 24 | 15 |
| 11 | 32 | 30 |

10. (a) State Bank of India recently established a new policy linking savings account interest rates to Repo rates. Therefore, the auditor of the State Bank of India wants to conduct an independent analysis of the decisions taken by the bank regarding interest rate changes and whether those have been changed whenever there have been changes in the Repo rate. Therefore, the following is the summary of the Repo rate and Bank's savings account interest rate that prevailed in those months are below.

| Month | Repo Rate | Bank's Rate |
|----------|-----------|-------------|
| January | 6.25 | 4.03 |
| February | 6.50 | 4.02 |
| March | 6.50 | 4.02 |
| April | 6.00 | 4.04 |
| May | 6.25 | 4.03 |
| June | 6.25 | 4.03 |

Use the regression formula and determine whether the bank's rate changed as and when it changed the Repo rate.

(OR)

(b) Find the Pearson's coefficient of correlation between price and demand from the following data:

| | | | | | | | |
|--------|----|----|----|----|----|----|----|
| Price | 11 | 13 | 15 | 17 | 18 | 19 | 20 |
| Demand | 30 | 29 | 24 | 24 | 21 | 18 | 15 |