

(i) Printed Pages : 3 Roll No. ....

(ii) Questions : 10 Sub. Code : 

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Exam. Code : 

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Master of Commerce 1<sup>st</sup> Semester  
(2125)

**QUANTITATIVE METHODS FOR BUSINESS**

(Same for CDOE Candidates)

Paper : MC-102

**Time Allowed : Three Hours]**

**[Maximum Marks : 80**

**Note** :— Students have to attend a total of **FIVE** questions, selecting at least **ONE** question from each unit. All questions carry equal marks.

**UNIT—I**

1. Explain normal distribution, its properties, and utility in statistics.
2. A bag contains 2 white and 3 black balls. Four persons A, B, C, D in the order named each draw one ball and do not replace it. The first to draw a white ball receives Rs. 50. Determine their expectations.

**UNIT—II**

3. Define hypothesis and explain steps involved for testing of hypothesis.

4. A population consists of five values 3, 4, 5, 6, and 7. List all possible samples of size 3 without replacement from this population and calculate the mean  $\bar{X}$  of each sample. Verify that sample mean  $\bar{X}$  is an unbiased estimate of the population mean.
5. A market researcher engaged by a particular company believes that the proportion of households using the company's product in city A exceeds this proportion in city B by 0.05. The researcher conducts a survey of two cities and finds the following result:

City A	Sample size	No. of households using Company's product
A	$n_1 = 160$	120
B	$n_2 = 150$	100

Use 0.05 level of significance and test the researcher's claim.

### UNIT—III

6. A sample of heights of 6400 soldiers has a mean of 67.85 inches and a standard deviation of 2.56 inches while a sample of heights of 1600 sailors has a mean of 68.55 inches and a standard deviation of 2.52 inches. Do the data indicate that the sailors are on average taller than the soldiers?
7. To compare the price of a certain commodity in two towns, ten shops were selected at random in each town. The following figures give the price found:

<b>Town A</b>	61	62	56	63	56	63	59	56	44	60
<b>Town B</b>	55	54	47	59	51	61	57	54	64	58

Test whether the average price can be said to be the same in two towns.

8. Explain ANOVA and techniques of analysis of variance.

#### UNIT—IV

9. Explain statistical quality control and discuss methods used for statistical quality control.
10. A person has two independent investments A and B available to him; but he can undertake only one at a time due to certain constraints. He can choose A first then stop, or if A is successful then take B or vice versa. The probability of success of A is 0.6, while for B it is 0.4. Both investments require an initial capital outlay of Rs. 10,000 and both return nothing if the venture is unsuccessful. Successful completion of A will return Rs. 20,000 (over cost) and successful completion of B will return Rs. 24,000 (over cost). Draw a decision tree and determine the best strategy.