

Exam. Code : 103204

Subject Code : 1134

B.A./B.Sc. Semester—IV

QUANTITATIVE TECHNIQUES—IV

Time Allowed—3 Hours] [Maximum Marks—100

Note :— (1) Attempt all parts of question no. 1 in up to 5 lines. Each part carries 2 marks.

(2) Attempt **four** more questions, selecting **one** from each of the 4 units. Each question carries 20 marks and should be attempted in 5-7 pages.

(3) Statistical/Log Tables can be obtained on demand.

(4) Use of simple (non-scientific) calculator is allowed.

1. Attempt all the following questions

(a) What is multiple correlation ?

(b) What is the format of Gompertz curve ?

(c) What is moment generating function ?

(d) What is a multiplicative law of probability ?

(e) List the properties of mathematical expectation.

(f) What is Gamma distribution ?

(g) List the properties of Beta distribution.

(h) What is a standard error ?

(i) Write a short note on Non-Random Sampling Technique.

UNIT—I

2. Elaborate the format, applicability and estimation procedure of modified exponential growth curve.
3. Fit a logistic curve to the population figures of a country for 1931-2011. The approximate figures in millions are :

1921	39.82
1931	50.16
1941	62.95
1951	76.00
1961	92.97
1971	105.71
1981	122.78
1991	131.67
2001	150.70
2011	203.21

UNIT—II

4. Write a detailed note on Bayes theorem.
5. An urn contains 9 balls, two of which are red, three blue and four black. Three balls are drawn from urn at random, i.e., every ball has an equal chance of being included in the three. What is the chance that (a) three balls are of different colours; (b) two balls are of the same colour and third of different; and (c) the balls are of the same colour ?

UNIT—III

6. What is a normal curve ? Illustrate the properties of normal distribution.
7. Fit a normal curve to the following data :

Length of Line (cms)	Frequency
8.60	2
8.59	3
8.58	4
8.57	9
8.55	10
8.56	8
8.54	4
8.53	1
8.52	1

UNIT—IV

8. What are the features of a good sample ? Explain the Random Sampling Technique in detail.
9. What is probability sampling ? Elaborate the advantages and disadvantages of complete enumeration and sampling approaches to collection of data.