TDC (CBCS) Odd Semester Exam., 2019

ECONOMICS

(3rd Semester)

Course No. : ECOHCC-303T

(Statistical Methods for Economics)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

1. Answer any *two* from the following questions : 2×2=4

   (a) What do you mean by measures of central tendency?

(b) Mention two advantages of arithmetic mean.

(c) Write a note on kurtosis.

2. (a) What is skewness? How is skewness measured? 2+2=4

(b) Given below the arithmetic mean, the median and the standard deviation of two distributions. Determine which distribution is more skewed : 6

(i) AM = 22, median = 24, SD = 10

(ii) AM = 22, median = 25, SD = 12

OR

3. (a) What is standard deviation? Show that SD is independent of change of origin but not of scale. 2+4=6

(b) Compute the SD of household size from the following frequency distribution of 500 households : 4

Household Size	:	1	2	3	4	5
No. of Household	:	92	49	52	82	102
Household Size	:	6	7	8	9	
No. of Household	:	60	35	24	4	

UNIT—II

4. Answer any *two* from the following questions : 2×2=4

(a) What do you mean by sample space and sample point?

(b) Define random experiment.

(c) Define mutually exclusive and equally likely events.

5. (a) State classical definition of probability. State the limitations of this definition. 2+3=5

(b) State and prove the additional theorem of probability for any two mutually exclusive events *A* and *B*. 5

OR

6. (a) A bag contains 6 white and 4 black balls. One ball is drawn. What is the probability that it is white? 5

(b) Two unbiased coins are tossed. What is the probability of obtaining—

(i) both heads;

(ii) one head and one tail;

(iii) both tails;

(iv) at least one head? 5

UNIT—III

7. Answer any *two* from the following questions : 2×2=4

(a) Define random variable.

(b) Define standard normal variate.

(c) What is binomial distribution?

8. (a) What is a normal distribution? Mention the important properties of normal distribution. 2+4=6

(b) What do you mean by discrete and continuous random variables? 2+2=4

OR

9. (a) Define mathematical expectation. 2

(b) A die is thrown at random. What is the expectation of the number on it? 4

(c) A box contains 4 white and 6 black balls. If 3 balls are drawn at random, find the mathematical expectation of the number of white balls. 4

UNIT—IV

10. Answer any *two* from the following questions : 2×2=4

(a) Distinguish between a population and a sample.

(b) What is standard error of a statistic?

(c) Define stratified random sampling.

11. (a) What is sample survey? What are the main steps involved in a sample survey? Discuss them briefly. 2+4=6

(b) What are the different types of sampling? 4

OR

12. *(a)* Distinguish between simple random sampling with replacement (SRSWR) and simple random sampling without replacement from a finite population. 2+2=4

(b) A population consists of four numbers 3, 4, 2, 5. Consider all possible distinct samples of size two that can be drawn without replacement and verify that the population mean is equal to the mean of the sample mean. 6

UNIT—V

13. Answer any *two* from the following questions : 2×2=4

(a) Distinguish between a parameter and a statistic.

(b) What do you mean by point estimation?

(c) Explain the concept of confidence interval.

14. Describe the method of maximum likelihood for the estimation of unknown parameters. State the important properties of maximum likelihood estimators. 6+4=10

(Continued)

OR

15. *(a)* A random sample of 100 ball bearings selected from a shipment of 2000 ball bearings has an average diameter of 0·354 inch with an SD = ·048 inch. Find 95% confidence interval for the average diameter of these 2000 ball bearings. 5

(b) A sample of 100 gave a mean of 7·4 kg and a standard deviation of 1·2 kg. Find 95% confidence limit for the population mean. 5

★ ★ ★