



# 2019/TDC/ODD/SEM/ECOSEC-301T/068

**TDC (CBCS) Odd Semester Exam., 2019**

**ECONOMICS**

**( 3rd Semester )**

Course No. : ECOSEC-301T

**( Data Analysis )**

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

Answer **all** questions

UNIT—I

1. Answer any *three* of the following questions :

1×3=3

- (a) Define 'sampling unit'.
- (b) Name one source of secondary data.
- (c) Give another name for population survey.



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- (d) Mention one precaution in the use of secondary data.
2. Give brief answer to any one of the following : 2
- (a) Write two advantages of population survey over sampling.
- (b) Define random sampling.
3. (a) Discuss three merits and two demerits of secondary data. 5
- Or
- (b) Distinguish between random sampling with replacement and random sampling without replacement. 5

UNIT—II

4. Answer any three of the following questions : 1×3=3
- (a) Expand

$$\sum_{i=1}^3 x_i$$

- (b) What is the geometric mean of the variable  $x$ , if  $x = a, b$ ?

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- (c) Write the formula for standard deviation of  $x_i$ , when  $i = 1, 2, \dots, n$ .
- (d) State the relation among mean, median and mode in a fairly normally distributed population.
5. Give brief answer to any one of the following : 2
- (a) Mention two advantages of arithmetic mean.
- (b) Write two disadvantages of median.
6. (a) Calculate standard deviation from the following distribution : 5

Class	Frequency
15-25	4
25-35	11
35-45	19
45-55	14
55-65	0
65-75	2

Or

- (b) Prove that for two non-negative observations  $a$  and  $b$ ,  $AM \geq GM \geq HM$ . 5

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UNIT—III

7. Answer any *three* of the following questions :

1×3=3

- (a) What is a random experiment?
- (b) Define sample space.
- (c) What is the probability of getting 'six' from the throw of an unbiased die?
- (d) How many possible outcomes are there in each trial of binomial distribution?

8. Give brief answer to any *one* of the following : 2

(a) Define the following :

- (i) Mutually exclusive events
- (ii) Independent event

(b) The probability function for Poisson distribution is given as

$$f(x) = \frac{e^{-m} m^x}{x!}$$

Find the corresponding values for  $f(x)$ , when  $x = 0, 1, 2, 3$ .

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9. (a) A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability of the getting—

- (i) a black card;
- (ii) a red card;
- (iii) a king;
- (iv) either a king or a queen;
- (v) a joker.

5

Or

(b) What is the probability that a leap year selected at random will have 53 Sundays?

5

UNIT—IV

10. Answer any *three* of the following questions :

1×3=3

- (a) What is confidence interval?
- (b) What is the difference between population mean and sample mean?
- (c) If population is to sample, what is 'parameter' is to?
- (d) If we have a sample  $x = x_1, x_2, \dots, x_n$ , what is the sample variance?

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11. Give brief answer to any *one* of the following : 2

- (a) What is the difference between an estimate and an estimator?
- (b) Mention any two methods of point estimation.

12. (a) If  $x_1, x_2, \dots, x_n$  constitute a random sample from an infinite population with variance  $b^2$  and  $\bar{x}$  is the sample mean, show that

$$\sum_{i=1}^n \frac{(x_i - \bar{x})^2}{n}$$

is a biased estimator of  $b^2$ . 5

Or

(b) Explain the properties of consistency and sufficiency of an estimator. 5

UNIT—V

13. Answer any *three* of the following questions : 1×3=3

- (a) Define an index number.
- (b) If  $P_0 = 100$  and  $P_1 = 110$ , what is the percentage change in the prices, and in which direction?

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- (c) Write out the formula for Laspeyres' index with usual notation.
- (d) What are 'weights' in an index number?

14. Give brief answer to any *one* of the following : 2

- (a) State two problems in the construction of an index number.
- (b) Write two uses of a cost of living index number.

15. (a) Prove that Fisher's index satisfies both time reversal test and factor reversal test. 5

Or

(b) Construct index numbers using both Laspeyres' and Paasche's methods from the following data : 5

Items	Quantity		Price	
	$Q_0$	$Q_1$	$P_0$	$P_1$
A	10	12	12	15
B	5	10	8	10
C	12	16	10	12

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