2019

(CBCS)

(6th Semester)

ECONOMICS

TENTH PAPER

(Quantitative Techniques—II)

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. If the lower and upper limits of a class are 10 and 40 respectively, the mid-point of the class is

(a) 25 ( )

(b) 20 ( )

(c) 30 ( )

2. Pie-chart represents the components of a factor by

(a) percentages ( )

(b) angles ( )

(c) sectors ( )

3. The correct relationships between AM, GM and HM is

(a) AM = GM = HM ( )

(b) AM GM HM ( )

(c) HM GM AM ( )

4. The value which occurs with the maximum frequency on a given set of observations is

(a) mean ( ) *(b)* median ( )

(c) mode ( )

5. If A and B are two events, the probability of occurrence of either A or B is given as

(a) $P(A)$ $P(B)$ ( ) *(b)* $P(A$ $B)$ ( )

(c) $P(A$ $B)$ ( )

6. Which of the following is a continuous distribution?

(a) Poisson distribution ( )

(b) Normal distribution ( )

(c) Binomial distribution ( )

7. The value of rank correlation coefficient always lies between

(a) 1 and 0 ( ) *(b)* 1 and 1 ( )

(c) 1 and 2 ( )

8. In a _____ the correlation between the two variables is unity.

(a) perfect positive correlation ( )

(b) perfect negative correlation ( )

(c) Both *(a)* and *(b)* ( )

9. Which of the following is ***not*** a component of time series?

(a) Cyclical variations ( )

(b) Regular variations ( )

(c) Seasonal variations ( )

10. Base period for an index number should be a

(a) normal period ( ) *(b)* year only ( )

(c) period at distant past ( )

SECTION—B

(*Marks* : 15)

Answer the following questions : 3×5=15

1. *(a)* Define primary and secondary data.

OR

(b) What is meant by diagrammatic presentation of data?

2. *(a)* Define harmonic mean.

OR

(b) What is kurtosis?

3. *(a)* What do you understand by exhaustive set of events?

OR

(b) What is normal distribution?

4. *(a)* Define partial correlation.

OR

(b) Concept of coefficient of determination.

5. *(a)* What do you understand by seasonal variations?

OR

(b) What is meant by consumer price index?

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

Answer **one** question from each Unit

UNIT—I

1. Differentiate between descriptive and inferential statistics. Write the uses of statistics in economics. 4+6=10

2. *(a)* Distinguish between Sampling and Census data. 4

(b) Using the following data, draw a more than and less than ogives : 6

Class	0–10	10–20	20–30	30–40	40–50	50–60
Frequency	5	7	9	6	10	8

UNIT—II

3. Calculate the arithmetic mean and standard deviation from the following data : 5+5=10

Marks	0–10	10–20	20–30	30–40	40–50
Frequency	8	13	16	8	5

4. An analysis of the monthly wages paid to workers in two firms *A* and *B* gave the following results :

	Firm A	*Firm B*
Number of workers	160	150
Average wage	560	575
Variance of wage distribution	400	625

(a) In which firm is there greater variability in individual wages? 2

(b) Find out average monthly wages taken together. 3

(c) Find out combined standard deviation. 5

UNIT—III

5. *(a)* State and prove the multiplication theorem of probability. 6

(b) A bag contains 7 white, 5 black and 4 red balls. If two balls are drawn at random from the bag, find the probability that one is black and other is red. 4

6. Discuss the properties of Poisson distribution. 10

UNIT—IV

7. *(a)* What is rank correlation coefficient? 2

(b) The ranking of 10 students in two subjects *A* and *B* are as follows :

A	6	5	3	10	2	4	9	7	8	1
B	3	8	4	9	1	6	10	7	5	2

Calculate rank correlation coefficient. 8

8. From the following data, obtain the two regression equations. Also estimate the value of *Y* when *X* 12 : 4+4+2=10

X	6	2	10	4	8
Y	9	11	5	8	7

UNIT—V

9. Fit a straight line trend by the method of least squares from the following data and estimate the trend value for the year 2018 : 8+2=10

Year	2010	2011	2012	2013	2014	2015	2016
Production (in 1000 tons)	76	87	95	81	91	96	90

10. Prove that the Fisher's ideal index satisfies both the time-reversal and factor-reversal tests for the following data : 5+5=10

Commodity	*2018*		*2019*	
	Price	*Quantity*	*Price*	*Quantity*
A	8	80	10	120
B	10	120	12	96
C	5	40	5	50
D	4	56	3	60
E	20	100	25	150

★ ★ ★