

2024

(CBCS)

(6th Semester)

ECONOMICS

TENTH PAPER

(Quantitative Techniques—II)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(Marks : 10)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. The statistics is concerned with

- (a) aggregate of numerical facts ()
- (b) aggregate of disorganized facts ()
- (c) aggregate of qualitative facts ()
- (d) aggregate of heterogeneous facts ()

2. In pie-chart, the arrangement of the angles of the different sectors is generally

- (a) anti-clockwise ()
- (b) arrayed ()
- (c) clockwise ()
- (d) alternative ()

3. Flatness/peakedness at the top of the frequency curve is related to
 - (a) kurtosis ()
 - (b) skewness ()
 - (c) moment ()
 - (d) ogive ()
4. If the arithmetic mean = 13 and median = 12, then the value of mode will be
 - (a) 12.5 ()
 - (b) 12 ()
 - (c) 13 ()
 - (d) 10 ()
5. If the happening of an event is not affected by the happening of other events, it is said to be
 - (a) a dependent event ()
 - (b) an independent event ()
 - (c) a mutually exclusive event ()
 - (d) an exhaustive event ()
6. The parameters involved in the binomial distribution is/are
 - (a) n ()
 - (b) p and q ()
 - (c) n and q ()
 - (d) n and p ()
7. When one variable X increases and the other variable Y decreases, the correlation is
 - (a) positive ()
 - (b) negative ()
 - (c) zero ()
 - (d) one ()
8. In the regression equation $Y = a + bX$, the Y is called
 - (a) independent variable ()
 - (b) dependent variable ()
 - (c) continuous variable ()
 - (d) constant variable ()

9. Which of the following is not a measurement of trend?

- (a) Graphical method ()
- (b) Semi-average method ()
- (c) Least squares method ()
- (d) Seasonal variation method ()

10. Index number for the base year period is

- (a) zero ()
- (b) one ()
- (c) one hundred ()
- (d) two hundred ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Write notes on the following :

3×5=15

UNIT—I

1. Frequency polygon and frequency curve

OR

2. Diagrammatic and graphical presentations

UNIT—II

3. Characteristics of a good average

OR

4. Skewness

UNIT—III

5. Assumptions of Poisson distribution

OR

6. Mutually exclusive events

UNIT—IV

7. Partial and multiple correlations

OR

8. Regression analysis

UNIT—V

9. Components of time series

OR

10. Price relative

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer the following questions :

10×5=50

UNIT—I

1. (a) What are meant by descriptive statistics and inferential statistics? 4

(b) Construct histogram, frequency curve and frequency polygon from the data : 2+2+2=6

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	3	10	20	40	10

OR

2. (a) Differentiate between sampling and census methods. 4

(b) Draw 'less than ogive' and 'more than ogive' from the given data. Also determine the median value : 5+1=6

Marks	0-20	20-40	40-60	60-80	80-100
Frequency	10	20	40	15	15

UNIT—II

3. (a) What is meant by geometric mean? 3

- (b) Compute the mode by using the following cumulative table : 7

No. of Days Absent	<5	<10	<15	<20	<25	<30	<35	<40	<45
No. of Students	7	16	25	35	47	52	60	65	72

OR

4. Find the mean value and standard deviation for the following observation : 5+5=10

X	18	19	20	21	22	23	24	25	26	27
Y	3	7	11	14	18	17	13	8	5	4

UNIT—III

5. (a) State and prove the addition theory of probability. 6

- (b) A bag contains 10 white, 8 red and 5 black balls. Find the chance that three balls drawn at random are all white. 4

OR

6. Define normal distribution. Discuss the properties of normal distribution. 3+7=10

UNIT—IV

7. (a) What is rank correlation coefficient? 3

- (b) The scores of 8 students in Economics and Statistics are given below :

Students No.	1	2	3	4	5	6	7	8
Economics	70	48	58	55	54	50	60	52
Statistics	62	47	53	60	55	68	51	48

Calculate rank correlation coefficient and compare the two values. 5+2=7

OR

8. Construct the two regression equations and estimate the value of Y , when $X = 8$ by using the following data :

	X	Y
Arithmetic mean	7	9
Standard deviation	2	3

Correlation coefficient between X and Y is 0.5.

4+4+2=10

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 2025 : 8+2=10

Year	2015	2016	2017	2018	2019	2020	2021
Sales	40	42	52	50	45	55	47

OR

10. Calculate Fisher's ideal index from the following data and prove that it satisfies factor-reversal test : 5+5=10

Commodity	2022		2023	
	Price	Quantity	Price	Quantity
A	4	20	5	35
B	5	25	7	30
C	3	30	4	25
D	6	10	8	15
