2021

(CBCS)

(6th Semester)

ECONOMICS

TENTH PAPER

(Quantitative Techniques—II)

Full Marks : 75

Time : 3 hours

INSTRUCTIONS TO CANDIDATES

(Please read the instructions carefully before you start writing your answers)

1. Questions should be attempted as per instructions.
2. Do not copy the Questions. Indicate the Section and Question No. clearly while attempting the answer.
3. For Multiple choice answer, candidate should indicate the **Question No., Sub. No., (if any) and the correct answer. For example :**

   1. Name the State capital of Mizoram.

   (a) Lunglei

   (b) Aizawl

   (c) Champhai

   Candidate should provide answer as—Q. No. *1* : *(b) Aizawl*
   [Candidate should **avoid** writing only *(b)*]
4. The figures in the margin indicate full marks for the questions.

(SECTION : A—OBJECTIVE)

(*Marks* : 10)

Choose the correct answer from the options provided : 1×10=10

1. The study that deals with the methods to make decisions about population based on sample results is called

(a) inferential statistics

(b) descriptive statistics

(c) primary survey

(d) census survey

2. The graph of frequency distribution is called

(a) cumulative frequency polygon

(b) curve

(c) histogram

(d) None of the above

3. Which one of the following is a positional average?

(a) Geometric mean

(b) Harmonic mean

(c) Median

(d) None of the above

4. Choose the correct combination from Group—A and Group—B :

Group—A	*Group—B*
(1) Geometric mean	*(i)* $\frac{1}{n} \quad x$
(2) Harmonic mean	*(ii)* $\sqrt[n]{x_1 x_2 x_3 \cdots x_n}$
(3) Arithmetic mean	*(iii)* $\frac{n}{\frac{1}{x_1} \quad \frac{1}{x_2} \quad \frac{1}{x_3} \quad \cdots \quad \frac{1}{x_n}}$

(a) (1) and (i), (2) and (ii), (3) and (iii)

(b) (1) and (ii), (2) and (iii), (3) and (i)

(c) (1) and (i), (2) and (iii), (3) and (ii)

(d) (1) and (iii), (2) and (i), (3) and (ii)

5. _____ is calculated on the basis of past experience and on experiment conducted.

(a) Classical probability

(b) Empirical probability

(c) Modern approach to probability

(d) None of the above

6. Poisson distribution has only one parameter which is

(a) mode

(b) mean

(c) standard deviation

(d) variance

7. If the two lines of regression are perpendicular to each other, the correlation coefficient r is

(a) 0

(b) 1

(c) -1

(d) 2

8. In regression analysis, the variable that is being predicted is the

(a) dependent variable

(b) independent variable

(c) continuous variable

(d) endogenous variable

9. Index for base period is always taken as

(a) 0

(b) 1

(c) 100

(d) 1000

10. Linear trend of a time series indicates towards

(a) constant rate of change

(b) constant rate of growth

(c) change in geometric progression

(d) None of the above

(SECTION : B—SHORT ANSWER)

(*Marks* : 15)

Write notes on the following : 3×5=15

1. *(a)* Primary and secondary data

OR

(b) Frequency polygon

2. *(a)* Kurtosis

OR

(b) Properties of a good measure of average

3. *(a)* Classical probability

OR

(b) Theoretical distribution

4. *(a)* Multiple correlation

OR

(b) If the coefficient of correlation r 0 6, calculate the coefficient of determination.

5. *(a)* Uses of time series in economics

OR

(b) Price index number

(SECTION : C—DESCRIPTIVE)

(*Marks* : 50)

Answer the following questions : 10×5=50

UNIT—I

1. *(a)* Enumerate the various uses of statistics. 4

(b) The following table shows the monthly expenditure on various items. Draw a pie diagram for the information : 6

Sl No.	*Expenditure items*	*Amount* ₹ (in crores)
1.	Food items	1,000
2.	Defence	2,500
3.	Education	1,500
4.	Railways	800
5.	Medical	1,800
6.	POL	2,000
7.	Electricity	400

OR

2. *(a)* Mention the different types of diagrams. 4

(b) Draw a frequency polygon from the following data : 6

Class	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80
Frequency	4	7	6	9	17	20	10	5

UNIT—II

3. *(a)* Calculate the median for the following frequency distribution : 5

Marks	<10	<20	<30	<40	<50	<60	<70
No. of Students	5	15	27	36	55	60	75

(b) Calculate standard deviation from the following observations : 5

57 47 55 50 65 59 62 43 62

OR

4. An analysis of the monthly wages paid to workers in two firms *A* and *B*, belonging to the same industry, gives the following results : 2+3+5=10

	Firm—A	*Firm—B*
No. of workers	586	648
Average monthly-wage (₹)	52·5	47·5
Standard deviation of wage distribution	10	11

(a) Which firm, *A* or *B*, pays out larger amount as monthly wages?

(b) Which firm has a greater variability in individual wages?

(c) Find out the combined mean wages.

UNIT—III

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

(b) A bag contains 7 yellow, 10 green and 5 white balls. If two balls are drawn at random, find the probability that one is green and other is white. 4

OR

6. What is binomial distribution? Describe the properties of binomial distribution. 3+7=10

UNIT—IV

7. From the following data, calculate the rank correlation coefficient. Also, give a comment on the result : 8+2=10

X	1	6	3	9	5	2	7	10	8	4
Y	6	8	3	7	2	1	5	9	4	10

OR

8. In a correlation study the following values are obtained :

	X	*Y*
Mean	65	67
Standard deviation	2·5	3·5

Correlation coefficient between *X* and *Y* 0 8.

Construct the two regression equations and estimate the value of *Y*, when *X* 7. 8+2=10

UNIT—V

9. Define time series. Discuss the various components of time series. 2+8=10

OR

10. Compute Laspeyre's and Fisher's index number using the following data : 5+5=10

Commodity	*2018*		*2021*	
	Price (in ₹)	*Quantity* (in kg)	*Price* (in ₹)	*Quantity* (in kg)
A	7	9	10	14
B	8	15	11	20
C	5	20	6	25
D	3	10	3	12

★ ★ ★