

**2021/TDC/EVEN/SEM/
ECOH-602(A/B)/279**

TDC Even Semester Exam., 2021

**ECONOMICS
(Honours)**

(6th Semester)

Course No. : ECOH-602

Full Marks : 50

Pass Marks : 17

Time : 2 hours

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

Arts Students will answer from Option—A
and Science Students will answer from Option—B

OPTION—A

(For Arts Students)

Course No. : ECOH-602(A)

(Statistics for Economics—II)

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. (a) What do you mean by 'index numbers'? 2
- (b) Mention the uses of index numbers. 3
- (c) Discuss the various problems in the construction of index numbers. 5

2. (a) Prove that Laspeyres' and Paasche's index numbers can be derived as weighted arithmetic averages of the price relatives and specify these weights.

(b) Calculate the price index number for the year 1978 with 1976 as base using Laspeyres' or Paasche's formula, whichever will be applicable on the basis of the following data :

Commodity	Price (in ₹)		Money value ('000 ₹)
	1976	1978	1976
A	12.50	14.00	112.50
B	10.50	12.00	126.00
C	15.00	14.00	105.00
D	9.40	11.20	47.00

(Here money value means total value of a commodity.)

UNIT—II

3. (a) Describe the various components of time series.

(b) Discuss some of the adjustments for population changes, calendar variation and price changes, which are necessary to make the time series data homogeneous and comparable.

(3)

4. (a) Write down the merits and demerits of moving-average method. 5

(b) Calculate the five yearly moving average of the following : 5

Year	Values
1950	105
1951	115
1952	100
1953	90
1954	80
1955	95
1956	85
1957	75
1958	60
1959	65
1960	70
1961	58
1962	55
1963	53
1964	60
1965	52
1966	50

UNIT—III

5. (a) What are the main objectives of sampling? Explain with illustrative examples. 5

(b) Compare and contrast the merits and demerits of sample and census studies. 5

6. (a) Distinguish between 'standard error' and 'standard deviation'. 3

(b) Distinguish between population and sample. 2

(c) What is a random sample? 2

(d) Describe some methods of drawing a random sample from a finite population. 3

UNIT—IV

7. (a) Explain the concept of 'sampling distribution of a statistic'. 4

(b) State the formulae for standard error of sample mean and sample proportion. 3

(c) A simple random sample of size 5 is drawn without replacement from a finite population consisting of 41 units. If the population standard deviation is 6.25, what is the standard error of sample mean? 3

8. (a) Mention the criteria of a good estimator. 6

- (b) Show that the sample mean based on a simple random sample with replacement (SRSWR) is an unbiased estimator of the population mean. 4

UNIT—V

9. (a) Define the following terms : 6

- (i) Two-tailed and one-tailed tests
- (ii) Power of a test
- (iii) Statistical hypothesis

- (b) Write down the steps in 'test of significance'. 4

10. (a) What is student's t -distribution? When is it used to construct a confidence interval estimate of the population mean? 2+4=6

- (b) A manufacturer claimed that at least 90% of the components which he supplied, conformed to specification. A random sample of 200 components showed that only 164 were up to the standard. Test his claim at 1% level of significance. 4

(6)

OPTION—B

(For Science Students)

Course No. : ECOH-602(B)

(Elements of Econometrics—II)

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. (a) Define multicollinearity. Why do multicollinearity problems arise? $2+2=4$
(b) Discuss in brief any two tests to detect multicollinearity. $3+3=6$
2. (a) What are the consequences of multicollinearity?
(b) Discuss any corrective measure to avoid multicollinearity.

UNIT—II

3. (a) What is autocorrelation? How is the problem of autocorrelation detected? $2+3=5$
(b) How do you estimate the autocorrelation coefficient? Explain. 5
4. (a) How do you detect the presence of heteroscedasticity in a linear regression model? 4

(7)

- (b) What are the remedial measures of heteroscedasticity? Discuss. 6

UNIT—III

5. (a) What is a dummy variable? How shall the regression coefficient of the dummy variable be interpreted? 2+2=4

- (b) How does dummy variable trap arise in a regression model? Discuss with a suitable example. 6

6. (a) Discuss in brief the features of dummy variable model. 5

- (b) What are the importances of dummy variables in econometric analysis? 5

UNIT—IV

7. (a) Mention any two objectives of analysing a time series data. 2

- (b) What are the various components of time series? Elaborate. 8

8. (a) What do you understand by 'secular trend' in the analysis of a time series? 2

(b) Describe the various methods used in isolating secular trend in time series.

UNIT—V

9. (a) What is smoothing of time series?
(b) Discuss the merits and demerits of moving average method in measuring trend in time series.

10. Find a straight line trend equation by the method of least squares from the following data and then estimate the trend value for the year 1985 :

Year	1971	1972	1973	1974	1975
Value ('000)	65	80	84	75	77
Year	1976	1977	1978	1979	1980
Value ('000)	71	76	74	70	68

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