



UNIVERSITY OF PETROLEUM & ENERGY STUDIES

UPES, DEHRADUN

End Semester Examination –May, 2018

Name of the Program: MBA (ET)

Semester –II

Subject Name : Econometrics

Max. Marks : 100

Subject Code : ECON8001

Duration : 3Hrs

This question paper has 3 page(s).

Section – A (4*5 =20 Marks)

Attempt All Questions

1. Briefly Explain the following terms
 - a) Stochastic Disturbance
 - b) Conditional Expected value
 - c) Standard Error of an Estimate
 - d) Degree of freedom.

Section - B (5*10=50 Marks)

Attempt any Five Questions

2. How does an Econometrician proceed in their analysis of an economic problem? Explain the complete methodology?
3. Explain Population Regressions Function (PRF) and Sample Regression Function (SRF) with the help of a graph.
4. Explain the assumptions Underlying Classical Linear Regression Model.
5. Explain the characteristic of Normal Distribution. Discuss the similarities and differences from Standard Normal Distribution?
6. What is Hypothesis testing? Explain the procedure for testing a Hypothesis.
7. Indian Management Association wishes to have information on the mean income of middle managers in the retail industry. A random sample of 256 managers reveals a

sample mean of \$45,420. The standard deviation of this population is \$2,050. The Association would like to have answers to the following question:

- a) What is the reasonable range of values or interval for the population mean given the Z stastic to be 1.96?
- b) What does this result mean?

Section - C (2 *15=30 marks)

Attempt All Questions

8. Following is the data of number of copiers sold (Y) and the number of sales calls (X). The basic empirical theory tells us, that among many variables, the number of copiers sold is a function of the number of sales calls made.

Let us assume a mathematical representation of the above relation to be:-

$$Y = \beta_1 + \beta_2 X$$

Where number of sales calls(X) is an independent variable and copiers sold (Y) is a dependent variable.

| OBSERVATION | Y | X |
|-------------|----|-----|
| 1 | 20 | 40 |
| 2 | 40 | 60 |
| 3 | 40 | 80 |
| 4 | 50 | 100 |
| 5 | 60 | 130 |
| 6 | 60 | 140 |
| 7 | 70 | 140 |
| 8 | 30 | 150 |
| 9 | 70 | 170 |
| 10 | 65 | 170 |

- a. Calculate The Slope (β_2) and the Intercept (β_1) of the above equation and interpret the result.
 - b. Draw out the differences between correlation and regression.
9. The following data are the semester tuition fees (Rs000) for a sample of 3 Schools. At the .05 significance level, can we conclude there is a difference in the mean tuition rates for the three mentioned colleges?

Critical **F** value for **.05** significance level is **3.98**.

| School of Business | School of Law | School of Engineering |
|--------------------|---------------|-----------------------|
| 10 | 8 | 7 |
| 11 | 9 | 8 |
| 12 | 10 | 6 |
| 10 | 8 | 7 |
| 12 | | 6 |

- a) State the null and the alternative hypotheses.
- b) Develop an ANOVA table. What is the value of test statistic?
- c) What is your decision regarding the null hypotheses.