Exam.Code:0971
Sub. Code: 7361

1128

M.E. (Electronics and Communication Engineering)
Third Semester
ECE-1307: Research Methodology

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt any five questions.

x-x-x

I. Attempt the following:-

a) Define the term Validity.

b) Explain the term "Plagiarism".

c) Distinguish between Parametric and Non Parametric Tests.

d) What are the assumptions of the Parametric Tests?

e) Discuss computer aided search of literature.

f) What do you understand by the term, "Peer Review"?

g) What is Citation Analysis?

h) Distinguish between "Accuracy" and "Precision

i) Explain the types of errors with examples

j) What is ANOVA? (10x1)

UNIT – I

II. Describe, with the help of an example, the different steps involved in a research process. (10)

III. What are the different types of sampling? Also explain why probability sampling techniques are preferred over non probability sampling techniques. (10)

IV. What are the advantages of using secondary data over primary data? Also explain the precaution to be taken while using secondary data in research. (10)

UNIT – IV

V. a) What are the classifications of measurement scales? Explain the meaning of each class with examples.

b) List down various measures of central tendency and explain the difference between them? (5,5)

P.T.O.

VI. a) Select any topic for research and explain how you will use both secondary and primary sources to gather the required information.

b) The output voltage measured from two brands of compressors A and B is as follows. The samples were selected randomly.

Brand A: 230, 225, 220, 250, 225, 220, 220, 230, 240, 245

Brand B: 220, 215, 222, 230, 240, 245, 230, 225, 250, 240

Assume that the output voltage follows normal distribution has equal Variance. Test the hypothesis that the output voltage from both the brands is same. Use alpha= 0.05. Also construct a 95% confidence interval oh the difference in the mean output voltage. (5,5)

VII. An engineer is interested in the effects of cutting speed (A), tool geometry *(B),* and cutting angle (C) on the life (in hours) of a machine tool. Two levels of each factor is chosen, and two replicates ofa2^3 factorial design is run. The results are given below.

Treatment:	**(1)**	**a**	**b**	**ab**	**c**	**ac**	**bc**	**abc**
Response								
R_1	21	33	24	37	35	27	40	31
R_2	17	29	40	36	28	26	44	37

a) Analyze the data using ANOVA and conclude. Use alpha = 0.05.

b) Write down the regression model to predict the response and find out R^2 and R^2 adj. (5,5)

x-x-x