INSTITUTE OF AERONAUTICAL ENGINEERING
(AUTONOMOUS)

Code No:BCS703

M.Tech II Semester Regular Examinations, August 2017
Research Methodologies
(CAD/CAM/ CSE/ ES/ SE/ PEED))

Time: 3 hours   Max. Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT-I

1. (a) What is research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples. [7M]

    (b) Discuss the format of thesis and dissertation. [7M]

2. (a) What is time series? Explain various components of time series. [7M]

    (b) Fit a straight line traced by the method of least squares for the following data.

Year	: 2005	2006	2007	2008	2009	2010	2011
Production (in 1000 of tons):	77	88	94	85	91	98	100

[7M]

UNIT-II

3. (a) What are the various types of graphs used for presenting a frequency distribution. [7M]

    (b) Explain the different ways of presenting the data. [7M]

4. (a) Describe the steps in sample design. [7M]

    (b) A random sample of 200 measurements from an infinite population gave a mean value of 50 and a standard deviation of 9. Determine the 95% confidence interval for the mean value of the population. [7M]

UNIT-III

5. (a) Distinguish between correlation and regression. [7M]

    (b) Ten students got the following percentage of marks in the course principles of Economics and Statistics.

Roll No. : 1	2	3	4	5	6	7	8	9	10
Marks in Economics: 78	36	98	25	75	82	90	62	65	39
Marks in Statistics : 84	51	91	60	68	62	86	58	53	47

Calculate the coefficient of Correlation.

[7M]

6. (a) The following information is obtained concerning an investigation of 50 ordinary shops of small size.

	Shops		Total
	In town	In villages	
Run by Men	17	18	35
Run by Women	3	12	15
Total	20	30	50

Can it be inferred that shops run by women are relatively more in villages than in towns? Use ψ^2 test (ψ^2 value for one degree of freedom at 5% level of significance is 3.84)

[7M]

(b) Classification according class intervals involve three main problems :
   1. How many classes should be there?
   2. How to choose class limits?
   3. How to determine class frequency?
State how these problems should tackled by researcher? [7M]

UNIT-IV

7. (a) Explain interpretation is a fundamental component of Research Process? Explain why so? [7M]

(b) Describe the precautions that the researcher should take why interpreting is findings? [7M]

8. (a) Explain the significance of a research report and narrate various steps involved in writing such a report ? [7M]

(b) Write the different types of report particularly pointing out the difference between the technical report and a popular report? [7M]

UNIT-V

9. (a) Explain new developments in the copyright protect for following Computer games, video games, piracy of software. [7M]

(b) Distinguish international trademark law and copy right law. [7M]

10. (a) Describe the principles governing while a purchased book is later sold to

[7M]

(b) Explain the process patent application. [7M]