M.E. (Electronics) (Digital Systems)
RESEARCH METHODOLOGY
(504104) (2013 Pattern) (Semester - I)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

1) *Solve any one question out of Q1 and Q2.*
2) *Solve any two questions out of Q3, Q4 and Q5.*
3) *Solve any two questions out of Q6, Q7 and Q8.*
4) *Neat diagrams must be drawn wherever necessary.*
5) *Figures to the right side indicate full marks.*
6) *Assume suitable data, if necessary.*

Q1) Define and explain the following terms by giving suitable examples:

a) Research, Research Problems, Research Methods, Research Techniques. **[5]**

b) Scientific Methods, Research Process, Research Design. **[5]**

Q2) a) Which are the sources of research problem? Discuss in detail. **[5]**

b) Discuss the issues and trends of Research in the Industrial Context. **[5]**

Q3) a) What are the characteristics of a good research problem, Justify by giving few examples. **[4]**

b) Discuss the factors motivating Research. **[4]**

c) Discuss Data collection using a digital computer system. **[2]**

Q4) a) How to verify the performance of process system? Discuss. **[4]**

b) Discuss the Moments and response curve methods by giving suitable examples. **[4]**

c) State characteristics of instrument, why one researcher should study them. **[2]**

Q5) a) Would you consider isobars and isotheres as an analogue model of climate of a country? What could be advantage of such depiction? **[4]**

b) Model Building is an important tool in Research Methodology. Why?**[4]**

c) Discuss the methods of Model Building. **[2]**

Q6) a) Comment whether data collected on room temperature in an office and efficiency of workers are related or not? **[4]**

b) Explain the factors that affect the choice of data, viz primary or secondary, to be used in investigation. **[4]**

c) Define the term data and state its characteristics. **[2]**

Q7) a) What is Regression Analysis? Explain. **[4]**

b) What do you mean by sensitivity theory? Give its applications. **[4]**

c) List major differences between the various types of informal experimented designs. **[2]**

Q8) Write any one research proposal of your own interest which should include the following points:

a) Project Summary. **[4]**

b) Project Description (Objective and Significance, Background, Preliminary Results, Research Plan, [Conclusions]). **[4]**

c) Broader Social Impact and Educational Outreach, Results of Prior Finding. **[2]**

☛ ☛ ☛