

Total No. of Questions : 6]

SEAT No. :

**P4210**

**[4760]-1192**

[Total No. of Pages : 2

**M.E. (Computer Engineering)**  
**RESEARCH METHODOLOGY**  
**(2013 Pattern) (Semester-I) (510104)**

*Time : 3 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of logarithmic tables, slide rule, mollier charts, electronic pocket calculator and steam table is allowed.*
- 5) *Assume suitable data, if necessary.*

**Q1) a)** What is difference between research methods and methodology? Compare research methods, research techniques and explain with suitable examples. **[9]**

OR

b) Enlist and explain different objectives of research and explain ethical considerations in the research. **[9]**

**Q2) a)** What is research problem? Explain the importance of problem identification, and different technique involved in defining a research problem. **[8]**

OR

b) What is hypothesis and hypothesis formulation? Explain different characteristics the hypothesis must process in order to be a good research hypothesis. **[8]**

**Q3) a)** What is research design? Explain the meaning of the following in context of research design. **[8]**

- i) Extraneous variables;
- ii) Experimental and Control Groups,
- iii) Treatments.

OR

**P.T.O.**

- b) Explain and illustrate the following research designs: [8]
- i) Two group simple randomized design;
  - ii) Latin Square design,
  - iii) Random replications design; and
  - iv) Simple factorial design.

- Q4)** a) Calculate coefficient of correlation, coefficient of determination, and probable error from the following data. [8]

x:	100	200	300	400	500	600	700
y:	30	50	60	80	100	110	130

OR

- b) What do you mean by multivariate analysis? Explain how it differs from bivariate analysis. [8]

- Q5)** a) Point out the important limitations of tests of hypotheses. What precaution the researcher must take while drawing inferences as per the results of the said tests? [8]

OR

- b) The procedure of testing hypothesis requires a researcher to adopt several steps. Describe in brief all such steps. [8]

- Q6)** a) What is an optimum service level with respect to queuing theory? Explain the characteristic properties of the Poisson input process and discuss their limitations by giving examples from practical queuing systems. [9]

OR

- b) Describe in brief the layout of a research report. Enlist and explain different types of research reports. [9]

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