

Total No. of Questions : 6]

SEAT No. :

**P9482**

**[6182]-801**

[Total No. of Pages : 2

**M.E. (Computer Engineering) (Artificial Intelligence and Data  
Science) (Cyber Security)**

**RESEARCH METHODOLOGY  
(2017 Pattern) (Semester - I) (510101)**

*Time : 3 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*
- 3) Draw neat diagrams wherever necessary.*

**Q1) a)** What is importance of Research? What are Research paradigms? Elaborate the terms like research objectives and research outcomes in detail? **[9]**

OR

b) What is the significance of the code of ethics in research? Which are the 'ethical aspects' affecting and influencing engineering research? **[9]**

**Q2) a)** What is a research plan? What are elements getting generically included in Research Proposal? **[8]**

OR

- b) Elaborate the significance of the following in research methodology **[8]**
- i) h-index
  - ii) Patents as a type of research publication
  - iii) Research Gate in literature survey
  - iv) Paraphrasing in literature survey

**Q3) a)** What is the hypothesis and the Null hypothesis? Differentiate between One- dimensional statistics and Two-Dimensional Statistics? **[8]**

OR

- b) State the use of the following tools **[8]**
- i) ANOVA
  - ii) SOFA
  - iii) t-test
  - iv) CAT (Qualitative analysis tool)

**P.T.O.**

**Q4) a)** State the importance of optimization in engineering research? With the help of an example, explain the monte Carlo Optimization Method? [8]

OR

b) State the simplex optimization steps? What are constraints and cost function? State the similarity and differences in simplex and gradient methods of optimization? [8]

**Q5) a)** What are the guidelines for conducting surveys? What is role of statistical analysis in surveys? What are guidelines for survey reporting? [8]

OR

b) What is significance of the research proposal? What is an outline of a research proposal? What is the criteria for evaluating the research proposal? [8]

**Q6) a)** What is research Thesis? What are generic contents of the organization of thesis? Why the 'appendix' part in the thesis is important? [9]

OR

b) Elaborate following research outcomes and when which publication is to be attempted. [9]

- i) InPASS (Indian Patents Advanced Search System)
- ii) Copyright
- iii) Research Paper

