SEAT No. :

P3908

[5462]-622

M.E. (Electrical) (Power System)
RESEARCH METHODOLOGY
(2017 Pattern) (Semester -I) (503204)

Time : 3 Hours]   *[Max. Marks : 50*

Instructions to the candidates:

   1)   *Answer any three questions from question 1 to 4.*

   2)   *Questions 5 and 6 are compulsory.*

   3)   *Neat diagrams must be drawn wherever necessary.*

   4)   *Figures to the right indicate full marks.*

   5)   *Use of logarithmic table, slide rule and non-programmable calculator is allowed.*

   6)   *Assume suitable data, if necessary.*

Q1) What are the characteristics of good research? Differentiate between research methods and research methodology. **[6]**

Q2) Explain the structure of a research proposal and explain how to write a proposal. **[6]**

Q3) Write a detail note on intellectual property rights and patent law. **[6]**

Q4) Explain the Simplex method of linear programming. **[6]**

Q5) a) Explain the Penalty function method of constrained nonlinear programming with algorithm and example. **[12]**

    b) Define the terms basic solution, basic feasible solution, non-degenerate basic feasible solution and optimal solution. **[4]**

Q6) Write short notes with example on any two of the following: **[16]**

    a) Particle Swarm Optimization.

    b) Ant Colony Method

    c) Linear regression

    d) Genetic algorithm

    e) Simulated Annealing method.

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