Register Number: ………………………

## M.E. DEGREE EXAMINATIONS: JUNE 2012

Second Semester

## EMBEDDED SYSTEMS

EST507: Advanced Optimization Techniques

**Time: Three Hours**                                           **Maximum Marks: 100**

### Answer all the Questions:-

### PART A (10 x 2 = 20 Marks)

1. Define Optimization.

2. Write any four engineering application of optimization.

3. What is the significance of penalty constrained method?

4. What is posynomial?

5. What is evolutionary computing?

6. List biological inspired computation algorithm.

7. What is simulated annealing?

8. How to select initial solution in simulated annealing?.

9. What is tabu search?

10. Write equation of intensity of trail function.

### PART B (5 x 16 = 80 Marks)

11. a) State optimization Problem . Explain any two methods of optimisation.

### (OR)

   b) (i) Explain design constraints in optimization.                                        (6)

      (ii) What is objective function? Classify Optimization problem.           (2+8)


12. a) Explain solution of multi variable optimization with inequality constraints.

### (OR)

  b) Explain Stochastic Programming Optimization method.


13.a) What is reproduction? Explain the different types of Selection methods with example.

### (OR)

  b) Formulate Constrained Genetic algorithm. Explain different methodology of constrained genetic algorithm.

14. a) Explain the Simulated annealing algorithm with neat flowchart. List out the features of simulated annealing.

**(OR)**

b) Explain any one application using simulated annealing with its block diagram and algorithm.

15. a) (i) Explain ant colony algorithm for traveling sales man problem                (10)

    (ii) Write Short notes (i) Ant town (ii)Transition probability (iii) ant movement of each town.                (6)

**(OR)**

b) Write Short notes on

    (i) Adjusting the parameters in ant colony                (8)

    (ii) Basic Tabu search algorithm                (8)

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