Register Number: ……..

M.E DEGREE EXAMINATIONS: JUNE/JULY 2013

Second Semester

EMBEDDED SYSTEM

EST 507: Advanced Optimization Techniques

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

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1. Define constrained optimization with example.
2. How to formulate Objective function?
3. What is Multivariable Optimization technique? Give Example.
4. State the importance of Lagrange Multiplier.
5. Why does Evolutionary Computting become popular nowadays?
6. How to mutate genes in a string?
7. How annealing concepts used in optimization techniques?
8. What is Boltzmann constant? How it is used in simulated annealing?
9. How to choose α and β Parameters in Ant colony?
10. Is tabu search suitable for local optima. Why?

PART B (5 x 16 = 80 Marks)

11. a) Explain solution of multi variable optimization with equality constraints. Find the stationary/saddle points of $f(x)= 2x1^2+x2^2+2x1x2+x1-x2$.

(OR)

b) Classify different optimization problem with simple examples.

12. a) (i) Explain Random pattern method with example (8)

(ii) Explain Gradient Search method with example (8)

(OR)

b) How to form augmented function with equality constrains and inequality constraints. Explain it with example.

13. a) Explain the procedure to optimize non linear equation using genetic algorithm with example problem and Draw neat flowchart.

(OR)

b) Explain any one application in Engineering field using genetic algorithm with neat flowchart.

14. a) Explain the Simulated annealing methodology. Also explain how it is used in optimization problems with a neat flowchart. List out the features of Simulated annealing.

(OR)

b) (i) Explain the important terms of simulated annealing optimization in detail (8)

(ii) Explain any one application of simulated annealing in engineering field. (8)

15. a) How ant colony system simulate in optimization problem. Explain it with example and neat flowchart.

(OR)

b) Explain how Tabu search keeps short term memory, long term memory and find the optimal solution with flowchart.

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