Reg. No. : | | | | | | | | | | |

Question Paper Code: 52307

M.E. DEGREE EXAMINATION, MAY 2017

Elective

Computer Science and Engineering

15PCS520 - MULTI OBJECTIVE OPTIMIZATION TECHNIQUES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 20 = 100 Marks)

1. (a) (i) Explain the Principles involved in multi objective optimization problem. (10)

(ii) Discuss Dominance and Pareto Optimality. (10)

Or

(b) Discuss various classical methods for handling multi objective optimization problems. (20)

2. (a) Discuss various MOEA algorithms such as PAES, SPEA2, MOMGA, And micro GA with their advantages and disadvantages and applications. (20)

Or

(b) (i) Explain the following constrained multi objective evolutionary algorithms. Constrained Tournament method. (10)

(ii) Discuss the Ray– Tai –Seows Method. (10)

3. (a) Explain various MOEA theoretical issues such as Fitness Landscapes, Fitness functions, Pareto Ranking, Pareto Niching and Fitness Sharing, Recombination Operators and Mating Restriction. (20)

Or

(b) (i) Explain the run time analysis procedure for various MOEA algorithms. (10)

(ii) Explain No free lunch theorem in search and optimization. (10)

4. (a) (i) Discuss various test suites on MOEA parallelism. (10)

(ii) Explain different MOEA parallel paradigms. (10)

Or

(b) Explain various MOEA local search techniques. (20)

5. (a) Explain how MOEA algorithms are used in various scientific and industrial applications. (20)

Or

(b) (i) Explain the concepts, advantages and disadvantages of Distributed Reinforcement Learning. (10)

(ii) Explain Particle Swarm Optimization and Artificial Immune Systems heuristic algorithms. (10)

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