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

Question Paper Code: 52195

M.E. DEGREE EXAMINATION, NOV 2016

Elective

CAD / CAM

15PCD526 - ADVANCED OPTIMIZATION TECHNIQUES

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Classify the optimization problems and explain it in detail. (20)

Or

(b) With a case study write a detailed procedure for solve a multi-level optimization problem. (20)

2. (a) Write the importance of experiments and explain in detail about experimental strategies. (20)

Or

(b) A marketing research firm tests the effectiveness of three new flavorings for a leading beverage using a sample of 30 people, divided randomly into three groups of 10 people each. Group 1 tastes flavor 1, group 2 tastes flavor 2 and group 3 tastes flavor 3. The scores given by each person about the flavor of the beverage is listed in Table 1. Conduct ANOVA test to determine whether there is a perceived significant difference between the three flavorings.

Flavor 1	Flavor 2	Flavor 3
13	12	7
17	8	19
19	6	15
11	16	14
20	12	10
15	14	16
18	10	18
9	18	11
12	4	14
16	11	11

Table 1 Scores for the flavors

(20)

3. (a) With a suitable example, explain (i) Utility theory and (ii) Game theory. (20)

Or

(b) Tools and machines have an important effect on the manufacturing operations effectiveness and the selection process of appropriate tools and machines is a complex issue with the consideration of multiple criteria such as productivity, flexibility, cost, safety etc. Formulate and analyze the machine tool selection problem using a suitable multiple criteria decision making (MCDM) approach. (20)

4. (a) Write the applications of genetic algorithm and explain the following (i) selection (ii) reproduction (iii) mutation. (20)

Or

(b) Write a procedure for finding the minimum of a function using simulated annealing with an engineering example and give the application of stimulated annealing process. (20)

5. (a) Explain in detail about activation function used in neural networks. (20)

Or

(b) Explain in detail about supervised course and unsupervised course. (20)