BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

01570

Term-End Examination

June, 2013

BME-022 : SOFT COMPUTING IN CIM

Time : 3 hours   *Maximum Marks : 70*

Note : *Assume suitable missing data if **any**. Answer **any five** of the following.*

1. (a) What do you mean by fuzzy IF-THEN rules ? What is the physical significance of fuzzy IF–THEN rules ?   7

   (b) What is the difference between fuzzy sets and crisp sets ? Discuss the various methods of membership determination.   7

2. (a) What is sigmoid function ? Discuss the scope of implementation of neural networks.   7

   (b) Discuss the role of Expert system in Semi Automated Assembly.   7

3. (a) Discuss the performance measure of the Tabu Algorithm, as compared to the genetic algorithm and simulated annealing.   7

   (b) Discuss the implementation procedure of genetic algorithm in proces planning problem.   7

4. (a) How Chaotic Generators can improve the convergence rate of the PSO (Particle Swarn Optimization) ? 7

(b) What is the practical significance of hypermutation in atrificial immune system ? 7

5. (a) Detail the various steps of ant colony optimisation. 7

(b) Illustrate the mathematical modelling of machine loading problems. 7

6. (a) Explain the applications of neural networks for quality control, quality assurance and fault diagnosis of manufacturing system. 7

(b) Describe the various factors involved in robot control using an expert system. 7

7. (a) What is a Deadlock in a Petrinet ? 7

(b) Define FPN(Fuzzy Neural PetriNet). Can FPN deal with compound production rules ? 7