BME-022

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

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Term-End Examination

June, 2019

BME-022 : SOFT COMPUTING IN CIM

Time : 3 hours   *Maximum Marks : 70*

*Note : Attempt any **ten** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. What are the elements of Expert Systems ? Differentiate between rule base and knowledge base.   7

2. Discuss the role of Expert Systems in Semi-automated Assembly.   7

3. Define "Part routing problem". How are different rules constructed in the problem considered ?   7

4. How would you solve a combinatorial optimization problem by Ant Colony Optimization (ACO) ?   7

5. How can you implement Ant Colony Optimization (ACO) algorithm in Travelling Salesman Problem ? List the steps required to be considered. 7

6. What is the practical relevance of different need theories mentioned in Maslow's Hierarchy ? 7

7. What are neural networks ? Explain the use of back propagation in neural networks. 7

8. Explain the applications of neural networks for modelling and design of manufacturing systems. 7

9. What is "Reachability Graph" ? What are the merits and demerits of Classical Petri Net Modelling ? 7

10. List down the applications of Petri nets. What is a deadlock in a Petri net ? 7

11. Briefly explain the steps involved in Genetic Algorithm optimisation method. 7

12. With the help of a block diagram, illustrate an Expert System based Robot Controller. 7

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