| BME-022 |

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

01849

Term-End Examination
December, 2011

BME-022 : SOFT COMPUTING IN CIM

Time : 3 hours   *Maximum Marks : 70*

*Note :   Attempt **any seven** questions. All questions carry **equal** marks.*

1.   What is an expert system ? What are the   **10**
differences between rule base system and
knowledge base system ?

2.   What are the neural networks ? Explain   **10**
implementation of neural networks in process
planning and its implications.

3.   What do you mean by fuzzy IF-THEN rules ?   **10**
Explain the physical significance of fuzzy
IF-THEN rules.

4.   What is a simple genetic algorithm ? Discuss the   **10**
role of genetic operators in exploring the search
space.

5. What is the basic principle involved in Ant Colony **10** Optimisation (ACO) algorithm ? How would you solve a combinatorial optimisation problem by ACO ?

6. How Artificial Immune System (AIS) can be **10** implemented in pattern recognition problem ? Write the pseudo-code of implementing AIS in pattern recognition problem.

7. Describe the technologies associated with **10** Computer Integrated Manufacturing. Also enlist the various advantages of Computer Integrated Manufacturing.

8. Describe with examples, the different parameters **10** that ought to be optimised in CIM.

9. What do you understand by petri nets ? Explain **10** any two definitions of Petri nets with examples. Also enumerate the merits and demerits of classical petri nets.

10. Define Fuzzy Neural Petri Nets. Draw a FNPN **10** model representing three AND rules.