Reg.No.									

MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University, Manipal – 576 104

VII SEM. B.Tech. (I & P ENGG.) END SEMESTER EXAMINATIONS

NOV/DEC 2015

SUBJECT: KNOWLEDGE BASED SYSTEMS IN MANUFACTURING (MME-457)

REVISED CREDIT SYSTEM

Time: 3 Hours. MAX.MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Draw neat sketches, wherever necessary

1A Explain the System Architecture and Data Flow in an Intelligent Manufacturing System using a suitable example. **[5]**

1B Explain the four classes of a Tandem Knowledge Based System. **[5]**

2A Justify the following Observations of Flexible Machining Systems (FMS) using suitable sketches/data: **[6]**

- The layout of machines in a FMS is determined by the type of material handling equipment used.
- The number of steps in a process plan designed for a FMS is significantly smaller than in an equivalent classical process plan.

2B Explain the Forward Chaining Inference Strategy using a suitable example. **[4]**

3A Explain the four modification operators and give a suitable example. **[6]**

3B Explain Orientation of Parts in Automated Assembly using production rules. **[4]**

4A Solve the following Machine part incidence matrix using Clustering algorithm and give the clustered layout: **[5]**

Machine number	Part number 1	2	3	4	5	6	7
1		1	1		1		
2	1					1	
3				1			1
4						1	
5				1			
6			1		1		

4B Explain Similarity Coefficient Method and Sorting based Algorithm used in the matrix formulation. **[5]**

5A Give basic rules for Designing a product for Automated Assembly. **[4]**

5B Explain the following with respect to Design of Parts for Automated Assembly with sketches: **[6]**

- Symmetry
- Parts joining

6A What are Artificial Neural Networks? What are the tasks established by these networks? **[4]**

6B Explain Genetic Algorithms and describe its use in Manufacturing using an example. **[6]**