प्रज्ञान ब्रह्म
Manipal NSPIRED BY LIFE

MANIPAL INSTITUTE OF TECHNOLOGY

Manipal University, Manipal – 576 104



VII SEM. B.Tech. (I & P ENGG.) END SEMESTER MAKE-UP EXAMINATIONS **NOV/DEC 2015**

Reg.No.

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** Write and explain the components of a knowledge based system.
- **1B** Explain Production rules and enumerate the differences between structured and [5] unstructured production rules.
- 2A Justify the following Observations of Flexible Machining Systems (FMS) using suitable sketches/data:
 - [6] • The number of setups in a process plan designed for a FMS is significantly smaller than in an equivalent classical process plan.
 - The design of a FMS has an impact on its operation.

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

- **3A** Compare the following representation schemes based on Volume of Inference [5] Engine: Logic, Production Rules, Frames, Structured Production rules.
- **3B** Explain Feeding of Parts in Automated Assembly using production rules. [5]
- **4A** Explain Configuration Space Method applied to three dimensional space and give [5] the analysis of a mechanism as an example.
- **4B** Explain Sorting based Algorithm and Bond Energy Algorithm used in the matrix [5] formulation.
- **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:
 - Compliance [6]
 - Self-Alignment

[5]

- **6A** What are Artificial Neural Networks? What are the tasks established by these [4] networks?
- **6B** Explain Fuzzy Logic Controller solving a Routing problem in manufacturing using [6] a suitable example/data.

(MME-457)