Dec 13 (KUK)

Roll No. ..... Total Pages : 03

BT-7/D-13 **8705**

COMPUTER ENGINEERING

CSE-445

Artificial Intelligence

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Write a detailed history of Artificial Intelligence, explaining classical, romantic and modern periods.

   (b) What is an intelligent machine. Write its complete architecture. 8,7

2. (a) What is knowledge and what is knowledge representation ? Name at least *two* techniques of knowledge representation. Discuss production system as a knowledge representation system, describing its main components.

(b) Explain conflict and different strategies of conflict resolution, including meta rules. 2,1,9,3

Unit II

3. (a) Explain forward and backward chaining with the help of an example. 5

(b) Explain the following :

(i) Wang's algorithm of theorem proving 5

(ii) Robinson's Inference rule. 5

4. What is CNF ? The following set of statement be converted in CNF and prove that :

John likes children who drink telley tea. The data is :

(i) Telley is a tea.

(ii) Dolly is a child who drinks tea.

(iii) John likes those children who drink telley tea. 15

Unit III

5. Differentiate between monotonic and non-monotonic logics. Explain how does Mc Dermott's NMLI discusses non-monotonic logic.

What are the limitations of NML I and how are they overcome with NML II. Also discuss relations between NML I and NML II. 6,9

6. Write explanatory notes on any *two* of the following :

(a) Probability and its rules (axioms), including prior and conditional probabilities

(b) Fuzzy logic

(c) Certainty factors or D.S. Theory. 7½,7½

Unit IV

7. (a) Explain briefly the following terms in Search. Heuristic function, blind search, intelligent search, OR/AND graphs.

(b) How does A* algorithm lead to the best goal ? 5,10

8. Write a typical program of PROLOG. Explain with the help of some examples. How does PROLOG answer a query, discussing left to right, back-tracking modes ? 15