

8E4023

B.Tech VIII<sup>th</sup> Semester (Main) Examination, May/June-2010

Information Technology

**ARTIFICIAL INTELLIGENCE [8IT4.1]**

3 Hr.

[Maximum Marks: 80

Min. Passing Marks: 24]

Use of following supporting material is permitted during examination.

(Mentioned in form No. 205

1. \_\_\_\_\_ Nil \_\_\_\_\_

2. \_\_\_\_\_ Nil \_\_\_\_\_

Define the heuristics search techniques. Also explain the Algo of steepest Ascent Hill climbing and Best first search. [4+6+6=16]

Or

(a) What is various types of production system? Discuss the characteristics of a production system [4+4=8]

(b) Write an algorithm to describe "depth first search" procedure along with advantages and disadvantages. How is it different from Breadth first search? [6+2=8]

(a) What is knowledge representation and also differentiate knowledge and knowledge base? [4+4=8]

(b) What is knowledge and knowledge engineering? Explain briefly the difference between procedural and declarative knowledge. [4+4=8]

Or

(a) Determine whether following sentence is satisfiable, contradictory or valid:

$((A \rightarrow \neg B) \wedge (\neg C \rightarrow A) \wedge B) \rightarrow C$  [8]

(b) What are the various issues and approaches in knowledge representation? [8]

(a) What is meant by conditional probability? Explain Baye's theorem. [8]

(b) What is reasoning? Differentiate forward and backward reasoning. [8]

Or

- Q.3 (a) A lot of RAM contains 4x defective RAM. The RAM are typed before delivery. The tester report is not 100% accurate.

$$P\left[\frac{\text{tester report good}}{\text{RAM actually good}}\right] = 0.94$$

$$P\left[\frac{\text{tester report defective}}{\text{RAM is actually defective}}\right] = 0.95$$

if the tester reports defective to a RAM; find the probability that the RAM is actually defective. [16]

- Q.4 (a) Explain the minimax search procedure with algorithm. [8]  
(b) How Alpha-Beta pruning is better than the minimax search procedure? [8]

Or

- Q.4 (a) Explain the planning with the block-world problem in detail. [8]  
(b) What are the components of a planning system? [8]
- Q.5 (a) What is the mean of learning in AI? Describe different type of learning. [4+4=8]  
(b) What are neural nets? Explain single and multilayer neural nets? [4+4=8]

Or

- Q.5 (a) What do you understand by Expert system? Explain its components. [3+7=10]  
(b) Explain "Winston Learning Program". [6]