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322811(22)

APR-MAY

B. E. (Eighth Semester) Examination, 2020

(Old Scheme)

(CSE Engg. Branch)

ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all the questions. Part (a) of each unit is compulsory. Attempt any two parts from (b), (c) and (d) from each question.*

Unit-I

1. (a) Enlist the major components of Artificial Intelli-

gence.   2

(b) Explain A^* algorithm with suitable example.   7

(c) What do you understand by state space search? Define the missionaries and cannibal problem with problem space and solve it.   7

(d) Explain alpha-beta pruncing.   7

Unit-II

2. (a) Define propositional knowledge.   2

(b) What are the various steps to convert statements in first order predicate logic to clausal normal form? Convert the following statements into first order predicate logic and then to clausal normal form.   7

(i) Anyone whom Mary loves is a football star.

(ii) Any student who does not pass does not play.

(iii) John is a student.

(iv) Any student who does not study does not pass.

(c) Write a script for visit to restaurant as knowledge representation.   7

(d) Describe knowledge representation by semantic network.   7

Unit-III

3. (a) What are the various sources of uncertainity?   2

(b) What do you understand by Learning? How is learning achieved by using neural network?   7

(c) Write short notes on :   7

(i) Dempster-Shafer theory

(ii) Bayesian-Belief Network

(d) Explain the working of truth maintenance system with suitable example.   7

Unit-IV

4. (a) What is the use of Parsing?   2

(b) Explain the various steps used in natural language processing.   7

(c) What are the various components of planning system? Describe the block world planning problem.   7

(d) Differentiate between forward and backward reasoning. 7

Unit-V

5. (a) Enlist four expert system. 2

(b) What are the basic characteristics of expert system? Explain the importance of knowledge acquition in expert system. 7

(c) Explain the rule base system architecture of expert system. 7

(d) What do you understand by back tracking in PROLOG? Write a PROLOG program to find the length of a list. 7