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Max. Marks: 70

B.Tech IV Year II Semester (R13) Regular & Supplementary Examinations April 2018 ARTIFICIAL INTELLIGENCE

(Electronics & Instrumentation Engineering)

Time: 3 hours

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PART – A

(Compulsory Question)

- Answer the following: (10 X 02 = 20 Marks)
 - (a) What is a semantic net? Give examples.
 - (b) List the basic components of AI problem solving methodology.
 - (c) Explain with an example, heuristic search technique.
 - (d) State the meaning of predicate logic.
 - (e) Define membership function.
 - (f) What is meant by over fitting?
 - (g) Discuss the term "back propagation".
 - (h) Define certainty factor.
 - (i) Define artificial neural networks.
 - (j) How is A* algorithm admissible?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Define Heuristic search? What are the advantages of Heuristic search?

OR

3 Discuss the **tic-tac-toe** problem in detail and explain how it can be solved using AI techniques.

UNIT – IL

4 What is predicate logic? Explain the predicate logic representation with reference to suitable example.

OR

- 5 Consider the following sentences:
 - Marcus was a man
 - Marcus was a Pompeian
 - Marcus was born in 40 AD
 - All men are mortal
 - All Pompeians died the Volcano erupted in 79 AD
 - No mortal lives for more than 150 years
 - (i) Convert them to clause form.
 - (ii) Answer the question "is Marcus dead now" in two different ways. Clearly state the assumptions made.

UNIT – III

6 Explain the process of knowledge acquisition and validation for expert systems.

OR

7 List out & explain the characteristics features of expert system.

UNIT – IV

8 State and explain the generalized delta learning rule applied in back propagation algorithm.

OR

9 Discuss supervised learning and unsupervised learning.

UNIT – V

10 Explain various ways by which membership values can be assigned to fuzzy variables.

OR

11 Write the components of a fuzzy logic system and explain them.

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