Code: 13A05707 **R13**

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

ARTIFICIAL INTELLIGENCE

(Electronics & Instrumentation Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 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 – II

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.