7E7043

Roll No. _____ [Total No. of Pages : 2

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B.Tech. VII Semester (Main/Back) Examination, Nov. - 2019
Electrical Engg.
7EE3A Artificial Intelligence Techniques
(Common for EE,EX)

Time : 3 Hours **Maximum Marks : 80**
Min. Passing Marks : 26

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. a) Discuss the different application areas of Artificial Intelligence. (8)
   b) Differentiate between Machine learning and expert systems. (8)

OR

1. a) What are the characteristics of a good production system? (8)
   b) Discuss about the state space search technique. (8)

Unit - II

2. a) Discuss the characteristics of knowledge representation. Define properties of knowledge. (8)
   b) Write down the step by step procedure of hill climbing algorithm. (8)

OR

2. a) Discuss about the following terms in knowledge representation.
      i) Validity
      ii) Satisfiability
      iii) Contradiction (2+3+3)
   b) With respect to support vector machine, define
      i) Positive margin
      ii) Negative margin (4+4)

Unit - III

3. a) Explain the concept of neural network. (8)

   b) Explain the learning algorithm in neural networks. (8)

OR

3. Explain the different characteristics of perception. Also discuss the application area of perception. (16)

Unit - IV

4. a) What is machine learning systems? Explain. (8)

   b) Discuss any supervised algorithm with neat diagram. (8)

OR

4. a) Discuss about support vector machine. (8)

   b) Differentiate between supervised and unsupervised learning. (8)

Unit - V

5. *What is fuzzy logic? Differentiate between predicate logic and fuzzy logic.* (16)

OR

5. a) List different genetic algorithm approaches. (8)

   b) Write down fuzzy set operations and fuzzy quantifiers with types. (8)