Fourth Semester M.Tech Degree Examination, June/July 2017
Machine Learning Techniques

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1   a. What is Machine Learning? Explain different perspectives and issues in machine learning.
                                                                         (06 Marks)
    b. Explain applications of Machine Learning.   **(04 Marks)**
    c. Explain steps to design a learning system in details, with example and figure.   **(10 Marks)**

2   a. How does the candidate elimination algorithm work? What are its limitations?   **(10 Marks)**
    b. What is a Decision Tree? Write ID3 algorithm and explain.   **(10 Marks)**

3   a. Explain Back propagation algorithm. Mention its limitations.   **(10 Marks)**
    b. Explain how genetic algorithms are influenced by knowledge based techniques.   **(10 Marks)**

4   a. Explain the single perceptron with its learning algorithm and its separability and convergence property.   **(10 Marks)**
    b. Explain appropriate problems for Neural Network Learning with its characteristics.
                                                            (10 Marks)

5   a. Write Naïve Bayes classifier algorithm for learning and classifying text.   **(10 Marks)**
    b. Write short note on Features of Bayesian Learning methods.   **(05 Marks)**
    c. What is the relationship between Bayes Theorem and the problem of concept learning?
                                                            (05 Marks)

6   a. Explain K – nearest neighbor learning algorithm with example.   **(10 Marks)**
    b. Define the following terms with respect to K – Nearest Neighbor Learning :
       i) Regression   ii) Residual   iii) Kernel Function.   **(04 Marks)**
    c. Explain case based reasoning with example.   **(06 Marks)**

7   a. Explain Learning sets of First Order Rules in detail with example.   **(12 Marks)**
    b. Explain in what respect Reinforcement Learning problem differs from other function approximation tasks.   **(08 Marks)**

8   Write short notes on the following :
    a. Sequential Covering Algorithm.
    b. Difference between FOCL and FOIL algorithm.
    c. Radial Basis Functions.
    d. Q - Learning.   **(20 Marks)**

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