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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, M.Tech. - Computer Science and Engineering (MCSE)

Semester End Examination; May/June - 2019

Machine Learning Techniques

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Discuss some disciplines and examples of their influence on Machine Learning. 10

b. Explain in detail the process of learning system with suitable examples. 10

2 a. Explain the LIST-THEN-ELIMINATE algorithm with a suitable example. 10

b. Write short notes on the following with suitable examples : 10

i) A Biased Hypothesis space ii) An Unbiased learner

UNIT - II

3 a. Discuss the various appropriate problems for neural network learning along with its characteristics. 10

b. Derive the gradient descent rule with suitable example of your choice. 10

4 a. Write short notes on : 10

i) Alternative error functions ii) Recurrent networks

b. Explain the various genetic operators and illustrate them with suitable examples. 10

UNIT - III

5 a. Explain the features of Bayesian learning methods with suitable examples. 10

b. Discuss the mistake bound for the FIND-S algorithm. 10

6 a. Write short notes on : 10

i) Naive Bayes classifier ii) Bayesian Belief network

b. Prove the $\in$-exhausting the version space. 10

UNIT - IV

7 a. Explain the *k*-nearest neighbor learning algorithm with suitable example. 10

b. Discuss the locally weighted linear regression with a suitable example. 10

8 a. Explain in detail the sequential covering algorithm for learning a disjunctive set of rules. 10

b. Discuss in detail the concept of induction as inverted deduction with suitable example. 10

UNIT - V

9 a. Discuss the concept of explanation based learning algorithm PROLOG-EGB. 10

b. Explain the concept of Hypothesis space search with suitable examples. 10

10 a. Explain how reinforcement learning problem differs from other functions approximation tasks? 10

b. Discuss the Q learning algorthim with suitable example. 10

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