



CBCS SCHEME

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16/17SCS41

Fourth Semester M.Tech. Degree Examination, Aug./Sept. 2020

Machine Learning Techniques

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the steps involved in designing a learning system. Give an example. (10 Marks)
b. What are the various issues of machine learning? (06 Marks)

OR

- 2 a. Define version space. Explain the candidate – Elimination algorithm using version spaces. (08 Marks)
b. Define information gain. Explain ID3 algorithm with information gain measure for classification. (08 Marks)

Module-2

- 3 a. Write the stochastic gradient descent version of the back propagation algorithm for feed forward networks. (10 Marks)
b. Define perceptron. Explain perceptron training rule and delta rule. (06 Marks)

OR

- 4 a. Write the prototypical Genetic Algorithm (GA). Explain how crossover and mutation operators involved in GA. (10 Marks)
b. Analyze and explain how genetic programming discovers the word 'universal'. (06 Marks)

Module-3

- 5 a. Write Bayes theorem. Give an example of Bayes theorem and explain. (08 Marks)
b. What is Bayesian belief network? How the Bayesian belief network represented? Explain with example. (08 Marks)

OR

- 6 a. What is EM algorithm? Explain how the EM (Estimating Means) algorithm estimate means of k Gaussians. (08 Marks)
b. Write the definition of Vapnik Chervonenkis (VC) dimension? Write the find –S algorithm for the mistake bound model. (08 Marks)

Module-4

- 7 a. How k – nearest neighbor learning algorithm used in instance based method? Explain. (08 Marks)
b. Explain briefly about the radial basis function and case based functions. (08 Marks)

OR

- 8 a. Explain the sequential covering algorithm for learning a disjunctive set of rules. (08 Marks)
b. Write the basic FOIL algorithm for learning sets of First Order Rules. (08 Marks)

Module-5

- 9 a. Explain an analytical learning problem, Give the difference of analytical learning and inductive learning. (08 Marks)
b. Write the Q – learning algorithm and explain. (08 Marks)

OR

- 10 a. Write the explanation based learning algorithm PROLOG – EBG? Explain. (08 Marks)
b. Explain how FOCL algorithm perform the hypothesis space search. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.