

# CBCS SCHEME

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15EC834

## Eighth Semester B.E. Degree Examination, Jan./Feb. 2021 Machine Learning

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. What is Machine Learning? Explain how some discipline have influenced the Machine Learning? (08 Marks)  
b. Give details about some successful applications of Machine Learning with examples. (08 Marks)

OR

- 2 a. Explain different perspective and issues in Machine Learning. (08 Marks)  
b. Explain the steps involved in the final design of checkers learning system described by four distinct program modules. (08 Marks)

### Module-2

- 3 a. What are appropriate problems for decision tree learning? (08 Marks)  
b. Give decision tree to represent the following Boolean function.  
AV [B&&C] (08 Marks)

OR

- 4 a. Explain the concept of a perceptron with neat diagram. (08 Marks)  
b. Explain the remarks on the Back propagation Algorithm. (08 Marks)

### Module-3

- 5 a. Define and explain Bayes theorem. (08 Marks)  
b. Define Maximum Posteriori (MAP) hypothesis and derive the relation for  $h_{MAP}$  using Bayesian theorem. (08 Marks)

OR

- 6 a. Describe the concept of Minimum Description Length (MDL) principle and obtain the equation for  $h_{MDL}$ . (08 Marks)  
b. Explain Naïve Bayes classifier. (08 Marks)

### Module-4

- 7 a. What are the instant based learning? Explain key features and disadvantages of these methods. (08 Marks)  
b. Explain K-nearest neighbor learning. (08 Marks)

OR

- 8 a. Explain Case Based Reasoning (CBR) with CADET system. (08 Marks)  
b. List out the advantages of FOIL algorithm. (08 Marks)

### Module-5

- 9 a. Explain and analyze the learning with perfect Domain theories. (08 Marks)  
b. Discuss Inductive analytical approaches to learning the learning problem and hypothesis space search. (08 Marks)

OR

- 10 a. Write reinforcement learning problem characteristics. (08 Marks)  
b. Explain why the Q-learning algorithm does not specify how actions are chosen by the Agent. (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.