

# CBCS SCHEME

18MCA53

# Fifth Semester MCA Degree Examination, Jan./Feb. 2023 Machine Learning

Time: 3 hrs. Max. Marks: 100

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

# Module-1

1	a.	Define Machine Learning. Mention some of the applications of machine learning.	(10 Marks)	
	b.	What are the key properties and complaints of Finds algorithm?	(10 Marks)	

## OR

2	a.	Write LIST-THEN-ELIMINATE algorithm.	(10 Marks)
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b. Write a note on:

(i) Version space (ii) Inductive bias (10 Marks)

# Module-2

5 a. What is decision tree and decision tree learning? (04 Ma	3	a.	What is decision tree and decision tree learning?	(04 Marks
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b. Explain decision free with example. (08 Marks)

c. What are the appropriate problems of decision tree learning? (08 Marks)

#### OR

4 a. Explain the concepts of Entropy and Information gain. (10 Marks)

b. Describe the ID3 algorithm for decision tree learning with an example. (10 Marks)

## Module-3

5 a. Define artificial neural network. Explain appropriate problem for neural network learning with its characteristics. (10 Marks)

b. Explain the concept of perceptron with a neat diagram. (10 Marks)

#### OR

6 a. Briefly explain back propagation algorithm. (10 Marks)

b. Write a note on gradient Descent and Delta rule. (10 Marks)

#### Module-4

a. Define Bayesian theorem. What is the relevance and features of Bayesian theorem. (10 Marks)

b. Explain maximum Likelihood Hypothesis and least square error hypothesis. (10 Marks)

#### OR

8 a. Explain Brute force Bayes concept learning. (10 Marks)

b. Explain Naive Bayes classifier with an example. (10 Marks)

# Module-5

9 a. Define the following term:

i) Sample error ii) Random variable iii) Variance iv) Standard deviation. (10 Marks)

b. Explain Binomial distribution with an example. (10 Marks)

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10 a. What are instance based learning? Explain key features and advantages of these methods.

Describe K-nearest Neighbour learning algorithm for continuous values target function.

(10 Marks)

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