



Paper ID : 261570

Printed Page: 1 of 2

Subject Code:BCDS062

Roll No:

BTECH

(SEM. VI) THEORY EXAMINATION 2025-26

MACHINE LEARNING TECHNIQUES

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief.**02 x 7 = 14**

Q No.	Question	CO	Level
a.	Define Machine Learning and list its different types.	1	K1
b.	Explain the concept of well-defined learning problem with suitable example.	1	K2
c.	State Bayes Theorem.	2	K1
d.	Explain the concept of overfitting in Decision Trees?	3	K2
e.	Define k-Nearest Neighbor algorithm.	3	K1
f.	Define activation function in neural networks.	4	K1
g.	Define Reinforcement Learning with one example.	5	K2

SECTION B

2. Attempt any three of the following:**07 x 3 = 21**

Q No.	Question	CO	Level
a.	Explain the design of a learning system with a suitable example.	1	K3
b.	Describe Linear Regression and Logistic Regression with differences.	2	K2
c.	Explain the working of Naïve Bayes Classifier with assumptions.	2	K3
d.	Discuss Information Gain and its role in Decision Tree Learning.	3	K3
e.	Explain types of kernels used in Support Vector Machines.	2	K2

SECTION C

3. Attempt any one part of the following:**07 x 1 = 07**

Q No.	Question	CO	Level
a.	Explain various Machine Learning approaches such as ANN, Clustering, and Reinforcement Learning.	1	K2
b.	Discuss issues in Machine Learning and differentiate between Data Science and Machine Learning.	1	K3

4. Attempt any one part of the following:**07 x 1 = 07**

Q No.	Question	CO	Level
a.	Explain Bayes Optimal Classifier and Bayesian Belief Networks.	2	K3
b.	Describe the EM Algorithm with suitable example.	2	K3

5. Attempt any one part of the following:**07 x 1 = 07**

Q No.	Question	CO	Level
a.	Explain ID3 Algorithm with an example.	3	K3
b.	Discuss k-Nearest Neighbor and Locally Weighted Regression.	3	K2



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6. Attempt any <i>one</i> part of the following:		07 x 1 = 07	
Q No.	Question	CO	Level
a.	Derive the Backpropagation Algorithm for Multilayer Neural Networks.	4	K4
b.	Explain CNN architecture and different types of layers.	4	K2

7. Attempt any <i>one</i> part of the following:		07 x 1 = 07	
Q No.	Question	CO	Level
a.	Explain Q-Learning algorithm and Markov Decision Process.	5	K3
b.	Describe Genetic Algorithm cycle including crossover and mutation.	5	K2

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