MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)
Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

Estd. 2000

Department of Computer Science and Engineering
Question Bank - Academic Year (2021-22)

Course Code & Course Name : 19CSC29 & Machine Learning Techniques

Name of the Faculty: R.Kavishree

Year/Sem/Sec: III /V / A

UNIT- I INTRODUCTION AND SUPERVISED LEARNING

PART-A

1. What is machine learning (ML)?
2. List out the applications of ML problems
3. How does Supervisor Machine Learning Work?
4. List out the types of Machine Learning.
5. Differentiate Supervised Learning and unsupervised learning?
6. How Regression differ from classification?
7. Distinguish clustering and classification.
8. What is Noise? How it occurs?
9. When Underfitting and Overfitting will occur.
10. State Bayesian Decision theory.

PART-B

1. Enumerate the categories of Machine Learning and explain with its real time application.
2. Describe briefly about Bayesian Theory classification with suitable example.
    a) Write a brief note on Noise.
3. Briefly describe about linear Regression with suitable example.
4. What is the use of association rule? Explain in detail about a priori algorithm with example.
    a) Describe the methods for learning a class from examples.
5. Elucidate Learning Multiple classes.

UNIT-II PARAMETRIC AND SEMI PARAMETRIC METHODS

PART-A

1. What is Bias and variance?
2. List different types of densities.
3. Differentiate Prior density and Posterior density.
4. Compare Parametric and Non parametric classification.
5. What is Cross validation?

6. Define bias/variance dilemma.
7. What is the use of cross validation
8. Write the Difference between training and a testing data.
9. What is Imputation.
10. How Euclidean distance can be calculated.

PART-B

1. Explain in detail about Multivariate method.
2. Describe briefly about clustering and Explain K-Means clustering with example.
3. Compute agglomerative Hierarchical Clustering and explain about how classification differ from clustering.

	1	2	3	4	5
1	0				
2	9	0			
3	3	7	0		
4	6	5	9	0	
5	11	10	2	8	0

a) How to estimate the missing values? Explain tin detail.
b) Relate Multivariate Classification with Regression.
c) What do you mean by Tuning Model Complexity.Explain in detail.
d) Discuss in detail about Model Selection Procedures.

UNIT III : ARTIFICIAL NEURAL NETWORKS
PART-A

1. State the Perceptron rule.
2. Write the types of Gradient descent and differentiate it.
3. Define Artificial Neural Network.
4. Distinguish neural network and recurrent neural network.
5. Why we are going for delta rule.
6. What is the limitation of perceptron rule.
7. What is the use of Stochastic Gradient Descent.
8. Illustrate mutilayer neural network.
9. How to minimize the error in back backpropagation algorithm.
10. State delta rule.

PART-B

1. What is Artificial Neural Network? Explain appropriate problem for Neural Network Learning with its characteristics.
    a) Explain the concept of a Perceptron with a neat diagram
    b) Represent the Boolean functions of AND using perceptron. 3.a) Write the algorithm for Back propagation.
    c) Derive the Backpropagation rule considering the training rule for Output Unit weights and Training Rule for Hidden Unit weights with example.
    d) Differentiate Gradient Descent and Stochastic Gradient Descent.
    e) Explain in detail about Gradient Descent .
2. Discuss in detail about advanced topics in Neural Networks

UNIT IV : INSTANCE BASED LEARNING

PART-A

1. Differentiate linear regression and logistic regression
2. limitations of K-Nearest Neighbor algorithm
3. Illustrate Radial basis functions network
4. Distinguish Lazy and Eager Learning
5. Define Clustering
6. What is case based learning
7. Give pros and cons of locally weighted regression
8. How globally weighted algorthm having priority over locally weighted algorithm.
9. List the advantage of instance based approach.
10. sketch voronai representation.

PART-B

1. Enumerate the concept of Radial basis functions and Case Based reasoning.
2. Explain CADET System using Case based reasoning.
3. Describe briefly about clustering and Explain K-Nearest Neighbor learning clustering with example.
    a. Discuss in detail about Locally weighted regression.
    b. Write the Remarks on locally weighted regression in brief.
4. Describe briefly about Weighted Nearest Neighbor algorithm with example.

UNIT V : ADVANCED LEARNING

PART-A

1. Define Ensemble learning with example.
2. What is voting?
3. List the elements of Reinforcement Learning.
4. Why graphical model is used?
5. Differentiate bagging and boosting.
6. Define Reinforcement Learning.
7. Distinguish soft voting and hard voting.
8. What is delayed reward?
9. How environment mapped with agent in Reinforcement Learning?
10. What is Q-learning?

PART-B

1. Explain in detail about Reinforcement Learning with example.
2. Explain in detail about the Canonical cases for conditional independence model with example.
3. Enumerate in detail about graphical model with example.
    a) Explain Ensembler learning with example.
    b) Write short notes on bagging with example.
    a) What is the use of stacked generalization. Explain in detail?
    b) Explain the voting concept and its type with neat diagram.

Course Faculty HOD