SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

Academic Year 2022-2023 (Even)

Department of Computer Science and Technology

19TS622-MACHINE LEARNING

UNIT III			
PART – A			
Q.No.	**Questions**	**BT Level**	**Competence**
1	Define entropy	BTL 2	Understanding
2	Relate entropy and information gain	BTL 2	Understanding
3	Define regression	BTL 2	Understanding
4	What is the role of regression model in exploratory data analysis?	BTL 1	Remembering
5	What is CART?	BTL 1	Remembering
6	How does CART solve the regression problems?	BTL 4	Analyzing
7	Compare regression and Estimations	BTL 5	Evaluating
8	Compare classification and regression models	BTL 5	Evaluating
9	What is the principle of ordinary least square in linear regression?	BTL 1	Remembering
10	Compare linear regression model and logistic regression model	BTL 4	Analyzing
11	Identify pros and cons of regression models.	BTL 3	Applying
12	Develop the concepts of K- Nearest Neighbours.	BTL 3	Applying
13	What are benefits of K- NN algorithm?	BTL 1	Remembering
14	Identify the disadvantage of K- NN algorithm	BTL 3	Applying
15	Discuss how data normalization / standardization is required in K-NN?	BTL 6	Creating
16	List out the advantages of SVM	BTL 2	Understanding
17	What do you understand by similarity based learning?	BTL 1	Remembering
18	Discuss instance based learning vs model based learning.	BTL 6	Creating
19	How does the structure of decision tree help in classifying a data instance?	BTL 4	Analyzing
20	What are the different metrics used in deciding the splitting attribute?	BTL 1	Remembering

PART – B				
Q.No.	**Questions**	**Marks**	**BT Level**	**Competence**
1	Build the structure of a decision tree.	13	BTL 3	Applying
2	Explain logistic regression with suitable example	13	BTL 2	Understanding
3	Discuss about linear regression and derive the Individual error & Minimization functions.	13	BTL 6	Creating
4	Write short notes on (i) Regression and Correlation (ii) Limitation of Regression model	6 7	BTL 1	Remembering
5	Explain the difference between linear and logistics regression with example.	13	BTL 5	Evaluating
6	What are the Metrics used to validate the result of regression and explain each.	13	BTL 1	Remembering
7	How to construct Regression tree and write procedure to construct regression tree with example.	13	BTL 1	Remembering
8	Explain CART (Classification & Regression tree) algorithm with example.	13	BTL 2	Understanding
9	a) Compare Instance based learning and Model based learning. b) List example of Instance-based learning algorithm.	6 7	BTL 4	Analyzing
10	What is the role of kernels? Classify the different type of Kernel.	13	BTL 4	Analyzing
11	List the advantages of SVM and how optimal Hyperplane differ from Hyper plane	13	BTL 1	Remembering

12	Explain Soft margin support vector machine.	13	BTL 2	Understanding
13	Explain weighted K-nearest Neighbor algorithm.	13	BTL 2	Understanding
14	Develop the following (i) Kernel based non-linear classifier. (ii) Support Vector Regression.	6 7	BTL 3	Applying

PART – C

Q.No.	Questions	Marks	BT Level	Competence
1	How to construct ID3 and derive the procedure to construct a decision tree using ID3	15	BTL 6	Creating
2	Explain SVM classifier with suitable example	15	BTL 5	Evaluating
3	Consider the training dataset given in the following table. Use Weighted k-NN and determine the class. Test instance (7.6, 60, 8) and K=3.	15	BTL 6	Creating

S.No.	CGPA	Assessment	Project Submitted	Result
1	9.2	85	8	Pass
2	8	80	7	Pass
3	8.5	81	8	Pass
4	6	45	5	Fail
5	6.5	50	4	Fail
6	8.2	72	7	Pass
7	5.8	38	5	Fail
8	8.9	91	9	Pass

4	Consider the training dataset shown in the Table and construct a decision tree using CART algorithm					15	BTL 6	Creating

S.no	CG PA	Inter active	Practical Knowledge	Communi cation Skills	Job Offer
1	>=9	Yes	Very good	Good	Yes
2	>=8	No	Good	Moderate	Yes
3	>=9	No	Average	Poor	No
4	<8	Yes	Average	Good	No
5	>=8	Yes	Good	Moderate	Yes
6	>=9	Yes	Good	Moderate	Yes
7	<8	Yes	Good	Poor	No
8	>=9	No	Very good	Good	Yes
9	>=8	Yes	Good	Good	Yes
10	>=8	Yes	Average	Good	Yes