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 IV

PART – A

Q.No.	Questions	BT Level	Competence
1	Define clustering.	BTL 2	Understanding
2	List out the disadvantages of clustering schemes.	BTL 4	Analyzing
3	Distinguish between classification and Clustering.	BTL 4	Analyzing
4	List out the applications of clustering algorithm.	BTL 1	Remembering
5	Identify the challenges of clustering algorithm.	BTL 3	Applying
6	Estimate the problems associated with clustering large data.	BTL 5	Evaluating
7	What is k in k-means algorithm? How it is selected?	BTL 1	Remembering
8	What is meant by probabilistic based learning?	BTL 1	Remembering
9	Define Objective probability	BTL 2	Understanding
10	Define subjective probability	BTL 2	Understanding
11	Discuss Bayesian probability	BTL 6	Creating
12	Explain conditional probability	BTL 2	Understanding
13	Explain joint probability	BTL 2	Understanding
14	Compare probabilistic model and deterministic model	BTL 5	Evaluating
15	Develop the procedure for agglomerative algorithm.	BTL 3	Applying
16	Discuss Bayesian network	BTL 6	Creating
17	What is belief measure?	BTL 1	Remembering
18	State Bayes theorem	BTL 1	Remembering
19	What is meant by Bayesian belief network (BBN)?	BTL 1	Remembering
20	Choose type of inference performed in BBN?	BTL 3	Applying

PART – B

Q.No.	Questions	Marks	BT Level	Competence
1	Explain the concepts of clustering approaches. How it differ from classification.	13	2	Understanding
2	List the applications of clustering and identify advantages and disadvantages of clustering algorithm.	13	1	Remembering
3	Explain about Hierarchical clustering algorithm.	13	2	Understanding
4	Develop Mean Shift Clustering algorithm.	13	3	Applying
5	Recall the steps involved in Partitional clustering algorithm.	13	1	Remembering
6	Explain about EM algorithm.	13	2	Understanding
7	Write short notes on a) Cohesion & Separation	6 7	1	Remembering

	b) Silhouette Co-efficient			
8	Discuss the fundamentals of Bayes theorem.	13	4	Analyzing
9	Explain the classification using Bayes Model.	13	4	Analyzing
10	Develop the following a) Bayes Optimal Classifier. b) Gibbs Algorithm	6 7	3	Applying
11	Explain about Naïve Bayes algorithm for continuous attributes with examples.	13	4	Analyzing
12	Explain about various Bayesian classifier.	13	5	Evaluating
13	Consider a boy who has a volleyball tournament on the next day, but today he feels sick. It is unusual that there is only a 40% chance he would fall sick since he is a healthy boy. Now, Find the probability of the boy participating in the tournament. The boy is very much interested in volley ball, so there is a 90% probability that he would participate in tournaments and 20% that he will fall sick given that he participates in the tournament.	13	1	Remembering
14	Design and discuss how to construct BBN.	13	6	Creating

PART – C

Q.No.	Questions	Marks	BT Level	Competence
1	a) If the coordinates of the objects are (0,-3) and (5,8) then what is the Chebyshev distance. b) Discuss MIN algorithm with suitable examples c) Discuss Quantitative variables evaluation in clustering algorithm	5 5 5	BTL 5	Evaluating
2	Compile the single linkage algorithm for the following array points **Objects** / **X** / **Y** 0 / 1 / 4 1 / 2 / 8 2 / 5 / 10 3 / 12 / 18 4 / 14 / 28	15	BTL 6	Creating
3	Cluster the following set of data using k-means algorithm with initial value of objects 2 and 5 with the coordinate values (4,6) and (12,4) as initial seeds. Objects / X-coordinate / Y-coordinate 1 / 2 / 4 2 / 4 / 6 3 / 6 / 8 4 / 10 / 4 5 / 12 / 4	15	BTL 5	Evaluating
4	a) Discuss about Bayesian inferences b) Explain Top down inference & Bottom-up reasoning approaches.	5 10	BTL 6	Creating