CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Sixth Semester of B.Tech. (IT) Examination April 2020 IT377 MACHINE LEARNING & APPLICATIONS

Date: 30.04.2020, Thursday Time: 10:00 a.m. To 01:00 p.m. Maximum Marks: 70

Instructions:

- 1. The question paper comprises of two sections.
- 2. Section I and II must be attempted in separate answer sheets.
- 3. Make suitable assumptions and draw neat figures wherever required.

SECTION - I

Q - 1	Answer the following questions.	[10]
(a)	Differentiate between Supervised and Unsupervised learning.	[02]
(b)	What is Machine Learning? List three applications of Machine Learning.	[02]
(c)	What is the difference between agglomerative and divisive hierarchical clustering?	[02]
(d)	Define terms as per Neural Networks: epoch, and iterations	[02]
(e)	List the difference between Linear regression and Logistic regression.	[02]
Q - 2	Answer the following questions. [Any Two]	[10]
(a)	Write apriori property. Explain with example.	[05]
(b)	Explain the type of learning in Machine Learning.	[05]
(c)	Write steps to perform k-means clustering algorithm. What is the weakness of k-means clustering algorithm?	
Q - 3	Answer the following questions. [Any Three]	[15]
(a)	Explain Q-Learning algorithm in Reinforcement Learning.	[05]
(b)	What is instance based learning? Explain K- nearest Neighbour.	[05]
(c)	What is the requirement to use kernel function in Support Vector Machine (SVM)? Explain with example.	[05]
(d)	What is the use of Confusion Matrix? Explain in detail.	[05]

SECTION – II

Q - 4	Answer the following questions.	[10]
(a)	Testing set is not a part of training set. State True/False and Justify.	[02]
(b)	What is minimum-confidence? What is an equation to calculate confidence of rule?	[02]
(c)	List any four machine learning open-source libraries.	[02]
(d)	What is the use of slack variable in SVM?	[02]
(e)	List the difference between Machine Learning and Deep Learning	[02]
	Answer the following questions. [Any Two]	
Q - 5	Answer the following questions. [Any Two]	[10]
Q - 5 (a)	Answer the following questions. [Any Two] Explain Back propagation algorithm in Neural Network.	[10] [05]
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(a)	Explain Back propagation algorithm in Neural Network.	[05]
(a) (b)	Explain Back propagation algorithm in Neural Network. Discuss various activation functions of Artificial Neural Network.	[05] [05]
(a) (b) (c)	Explain Back propagation algorithm in Neural Network. Discuss various activation functions of Artificial Neural Network. What is overfitting and underfitting in Machine Learning?	[05] [05] [05]

X	Y
0	2
1	3
2	5
3	4
4	6

Find the least square regression line Y=a X +b.

Estimate the value of Y when X is 10.

(b) Explain methods of cross-validation in classification. [05]

(c) Write a short note on Convolutional Neural Networks. [05]

(d) How machine learning can be helpful to predict new cases of Novel coronavirus [05] (COVID-19)? Write a case study.
