# **Question Paper Code: 59227**

## B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

#### Elective

Computer Science and Engineering

## 15UCS927- MACHINE LEARNING ALGORITHMS

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A -  $(6 \times 1 = 6 \text{ Marks})$ 

(Answer any Six of the following Questions)

1. A Computer Program is said to learn from ----- E with respect to some CO1-U class of tasks T and performance measure P, if its performance at tasks in T, as measured by P, improves with E.

	(a) Training	(b) Experience	(c) Database	(d) Algorithm	m
2.	For unsupervised	learning we have	Model.		CO1- U
	(a) interactive		(b) predictive		
	(c) descriptive		(d) prescribtive		
3.	3. $p(A,B)=p(A \cap B)=p(A B)p(B)$ is referred		as		CO2- U
	(a) Conditional Probability		(b) Bayes rule		
	(c) Unconditional	Probability	(d) Product Rule	2	
4.	In statistics term, which represents the weighte		eighted average score?		CO2- U
	(a) Variance	(b) Mean	(c) Median	(d) Mode	
5.	What would be the relationship between 1-NN, 2-NN, and 3-NN?		the training time taken b	у	CO3- R
	(a) 1-NN>2-NN>3-NN		(b) 1-NN<2-NN<3-NN		
	(c) 1-NN~2-NN~3	3-NN	(d) None of the above		
6.	Pruning of the dec	cision tree reduces			CO3- R
	(a) Overfitting		(b) Underfitting		
(c) Number of attributes		(d) Number of training d			

7.	A Summation function is a for the input signals.						
	(a) Tokenizer		(b) Multiplier	(b) Multiplier			
	(c) Linear Combiner		(d) None of the	(d) None of the above			
8.	The inputs of the McCulloch-Pitts neuron		uron could be	n could be			
	(a) +1 or -1	(b) 0 or 1	(c) 0 or -1	(d) None of the above			
9.	is an example of unsupervised learning tasks.			CO5- R			
	<ul><li>(a) Classification</li><li>(c) Logistic Regression</li></ul>		(b) Simple	(b) Simple Regression			
			(d) Associ	(d) Association Analysis			
10.	Which of the fol	lowing is worked bas	sed on the data witho	n the data without any prior training?			
	(a) Classification		(b) Simple	(b) Simple Regression			
	(c) Logistic Reg	ression	(d) Cluster	ing			
	$PART - B (3 \times 8 = 24 \text{ Marks})$						

## (Answer any Three of the following Questions)

- Explain in detail the different types of Machine learning process in CO1- U (8) detail.
- 12. For preparation of the exam, a student knows that one question is to be CO2- App (8) solved in the exam which is either of types A, B or C. The probabilities of A,B, or C appearing in the exam are 30%, 20% and 50 % respectively. During the preparation, the student solved 9 of 10 problems of type A, 2 of 10 problems of type B, and 6 of 10 problems of type C.

Given that the student solved the problem, what is the probability that it was of type A?

13. Consider a fictional dataset that describes the weather conditions for CO3- App playing a game of golf. Given the weather conditions, each tuple classifies the conditions as fit("Yes") or unfit("No") for playing golf. Design a Decision Tree classifier for the dataset and test the chance of playing golf if the weather condition today = (Sunny, Hot, Normal, False)

	Outloo k	Temperatur e	Humidit y	Wind y	Play Golf
0	Rainy	Hot	High	False	No
1	Rainy	Hot	High	True	No
2	Overcast	Hot	High	False	Yes
3	Sunny	Mild	High	False	Yes
4	Sunny	Cool	Normal	False	Yes
5	Rainy	Cool	Normal	False	Yes
6	Overcast	Mild	High	True	Yes
7	Overcast	Hot	Normal	False	Yes
8	Sunny	Mild	High	True	No

- 14. Explain in detail, how the set of data be classified using simple CO4-U (8) perceptron.
- 15. Explain k-medoids clustering algorithm with example. CO5- U (8)

(8)