Velegapudi Ramakrishna Siddhartha Engineering College::Vijayawada
(Autonomous)

VR20

III /IV B Tech Degree Examinations(April 2023)
Sixth Semester
Department of Information Technology
20IT6302: MACHINE LEARNING

Time:3Hrs	**MODEL QUESTION PAPER**	Max Marks:70

Part – A is Compulsory
Answer one (01) question from each unit of Part – B
Answers to any single question or its part shall be written at one place only

Cognitive Levels(K): K1-Remember;K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate; K6-Create

Q. No		Question	Marks	Course Outcome	Cog. Level
Part - A			**10X1=10M**		
1	a	Differentiate between classification and regression?	1	CO1	K1
	b	Give general form of a confusion matrix for the binary classification	1	CO1	K2
	c	List out the different measures used for distance calculation	1	CO2	K1
	d	List some applications of machine learning in industry.	1	CO1	K1
	e	What is an error function in the context of a neural network?	1	CO1	K2
	f	What is inductive bias in decision tree learning?	1	CO1	K2
	g	Differentiate between k-means and hierarchical clustering	1	CO4	K2
	h	Define Bayes theorem	1	CO4	K1
	I	Write the purpose of kernel in SVM Algorithm?	1	CO4	K2
	j	What is reinforcement learning?	1	CO1	K2
Part – B			**4X15 =60M**		
		UNIT - I			
2	a	Discuss briefly the importance ingredients of machine learning with examples each with significance.	8	CO1	K2
	B	Illustrate and compare the following machine learning models: (i) Logical models (ii) Probabilistic models (iii)Geometric models	7	CO1	K1
		(OR)			
3	a	Define Learning? Discuss the supervised and unsupervised learning. Differentiate between them including examples. Also write your conclusion.	7	CO1	K4
	b	Explain with examples how to assess and visualize the performance of a classifier?	8	CO1	K2
		UNIT - II			
4	a	How do you represent a problem using decision tree? Explain with the help of an example?	7	CO2	K3
	b	Discuss about various issues in decision tree learning	8	CO2	K2
		(OR)			
5	a	Differentiate between univariate and multivariate linear regression	7	CO2	K2
	b	Illustrate calculation of the soft margin in Support Vector Machine (SVM) Algorithm.	8	CO2	K3
		UNIT - III			

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<tr><td>6</td><td>a</td><td>Illustrate with example Nearest Neighbors classification.</td><td>8</td><td>CO2</td><td>K3</td></tr>
<tr><td></td><td>b</td><td>Demonstrate K-means algorithm for clustering to divide the following numbers {8, 44, 50, 58, and 84} into two clusters.</td><td>7</td><td>CO2</td><td>K3</td></tr>
<tr><td colspan="6">(OR)</td></tr>
<tr><td>7</td><td>a</td><td>Predict the class label of the instance Using Bayesian classification:
'Chills=Y', 'Runny Nose=N', 'Headache=Mild', 'Fever=Y'
<table>
<tr><th>CHILLS</th><th>RUNNY NOSE</th><th>HEAD ACHE</th><th>FEVER</th><th>CLASS LABEL (COVID-YES/NO)</th></tr>
<tr><td>Y</td><td>N</td><td>MILD</td><td>N</td><td>N</td></tr>
<tr><td>Y</td><td>Y</td><td>NO</td><td>N</td><td>Y</td></tr>
<tr><td>Y</td><td>N</td><td>STRONG</td><td>Y</td><td>Y</td></tr>
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</table></td><td>8</td><td>CO3</td><td>K3</td></tr>
<tr><td></td><td>b</td><td>Write a short note on Bayesian Belief networks</td><td>7</td><td>CO3</td><td>K2</td></tr>
<tr><td colspan="6">UNIT – IV</td></tr>
<tr><td>8</td><td>a</td><td>Describe artificial neural network representation by considering the following example data
<table>
<tr><th>CHILLS</th><th>RUNNY NOSE</th><th>HEAD ACHE</th><th>FEVER</th><th>CLASS LABEL (COVID-YES/NO)</th></tr>
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</table></td><td>7</td><td>CO3</td><td>K3</td></tr>
<tr><td></td><td>b</td><td>Explain back propagation algorithm for multilayer neural networks with an example.</td><td>8</td><td>CO3</td><td>K3</td></tr>
<tr><td colspan="6">(OR)</td></tr>
<tr><td>9</td><td>a</td><td>Explain Q-learning algorithm with suitable example</td><td>7</td><td>CO1</td><td>K2</td></tr>
<tr><td></td><td>b</td><td>Discuss any four applications of reinforcement learning?</td><td>8</td><td>CO1</td><td>K2</td></tr>
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Designation	Name in Capitals	Signature with Date
Course Coordinator	Dr T.Anuradha Dr G Kalyani	
Program Coordinator	Dr.G.Kalyani	
Head of the Department	Dr.M.Suneetha	