USN | | | | | | | | | | |

21CST603

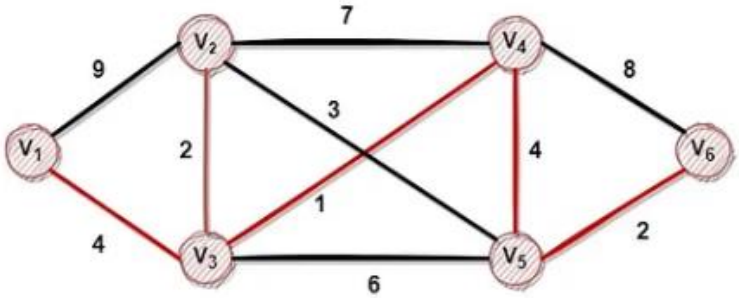
B. E. Degree (Autonomous) Sixth Semester End Examination (SEE), JUL/AUG 2024

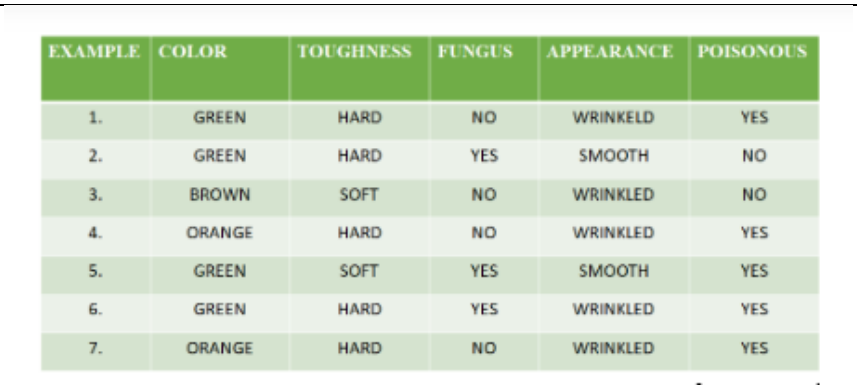
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Time:[3 Hours] **[Maximum Marks: 100]**

Instructions to students

1. **Answer FIVE FULL Questions.**
2. **Answer ANY ONE from Question No. 1 and 2**
3. **Answer ANY ONE from Question No. 3 and 4**
4. **Answer ANY ONE from Question No. 5 and 6**
5. **Answer ANY ONE from Question No. 7 and 8**
6. **Answer ANY ONE from Question No. 9 and 10**

SL NO	MODULE 1	Marks	CO	BTL
1 (a)	What is AI ? Explain the different perspectives of its definition.	10	CO1	L2
1 (b)	Explain the definition of Task environment with an example	10	CO1	L2
	OR			
2 (a)	Illustrate the agent and its working with an example Vacuum-Cleaner World	10	CO1	L3
2 (b)	With an example illustrate Utility based agents	10	CO1	L3
	MODULE 2			
3 (a)	Explain BFS algorithm with an example	10	CO2	L3
3 (b)	 Apply DFS algorithm consider V1 is the starting node	10	CO2	L2
	OR			
4 (a)	Consider the following set: S = {12, 14, 19, 22, 24, 26, 28, 31, 34}. Apply various binning techniques and show the result.	10	CO2	L4
4 (b)	Consider the set: V = {88, 90, 92, 94}. Apply Min-Max procedure and z-score	10	CO2	L2
	MODULE 3			

5 (a)	 Illutsrate the concept theory ,hypothesis ,version space for the above dataset	10	CO3	L2
5 (b)	Explain Candidate Elimination Algorithm	10	CO3	L2
	OR			
6 (a)	Write the algorithm for KNN and weighted KNN	10	CO3	L3
6 (b)	 Consider the BMI of a training dataset.Test (171,57) instance using KNN algorithm.	10	CO3	L2
	MODULE 4			
7 (a)	Explain the method of constructing Regression trees	10	CO4	L2
7 (b)	Explain ID3 algorithm with an example	10	CO4	L2
	OR			
8 (a)	Write a procedure to construct Decision Tree Using C4.5	10	CO4	L2
8 (b)	Illustrate the procedure for the classification using Bayes model	10	CO4	L2
	MODULE 5			
9 (a)	Explain the following terminologies in ANN 1)Weights 2)Bias	10	CO5	L2
9 (b)	Illustrate the flow chart of Hebb Training algorithm	10	CO5	L2
	OR			
10 (a)	Define Artificial Neural Network ?What are the appropriate problems for Neural Network	08	CO5	L2

EXAMPLE	COLOR	TOUGHNESS	FUNGUS	APPEARANCE	POISONOUS
1.	GREEN	HARD	NO	WRINKELD	YES
2.	GREEN	HARD	YES	SMOOTH	NO
3.	BROWN	SOFT	NO	WRINKLED	NO
4.	ORANGE	HARD	NO	WRINKLED	YES
5.	GREEN	SOFT	YES	SMOOTH	YES
6.	GREEN	HARD	YES	WRINKLED	YES
7.	ORANGE	HARD	NO	WRINKLED	YES

Height (CM)	Weight (KG)	Class
167	51	Underweight
182	62	Normal
176	69	Normal
173	64	Normal
172	65	Normal
174	56	Underweight
169	58	Normal
173	57	Normal
170	55	Normal

10 (b)	Explain back propagation algorithm with an example	04	CO5	L2

****