26-Dec-2023 10:30 am - 01:30 pm 1T01237 - B.E.(Information Technology Engineering)(SEM-VII)(Choice Base Credit Grading System) (R- 19) (C Scheme) / 42671 - AI and DS - II QP CODE: 10038602

Max. Marks: 80 **Duration: 3hr.**

Instructions:

(1) Question one is Compulsory.
(2) Assume suitable data wherever required but justify it.
(3) Solve any THREE from Question No. 2 to 6.
(4) Figure to the right indicate full marks.

Question No.			Marks

Q.1 (a) From below given probability distribution find **P (**¬ Cavity | Toothache**)** 5

	Toothache		¬ Toothache	
	Catch	¬ Catch	Catch	¬ Catch
Cavity	0.108	0.012	0.072	0.008
¬ Cavity	0.016	0.064	0.144	0.576

(b) Define defuzzification and State the necessity of the defuzzification process. 5

(c) Implement AND function using Mc-Culloch-Pitts neuron. (take binary data) ? 5

(d) What is the significance of ROC curves? 5

Q.2 (a) State Ensemble methods and describe anyone. 10

(b) Illustrate usage of taxonomies and ontologies for knowledge representation in cognitive system. 10

Q.3 (a) Explain the components of CNN architecture. 10

(b) Perform a case study on book recommendation system (data science based) 10

Q.4 (a) Describe the Properties of Fuzzy Sets with an example. 10

(b) Illustrate inferencing in Bayesian Belief Network with an example. 10

Q.5 (a) List and explain the design principles of Cognitive System. 10

(b) State and elaborate the applications of deep learning. 10

Q.6 (a) Calculate Accuracy, Precision, Recall, Sensitivity and Specificity for the following example. 10

Actual Class / Predicted Class	Buys_Computer=yes	Buys_Computer =no
Buys_Computer =yes	6954	46
Buys_Computer =no	412	2588

(b) Write a short note on- Data Science for Multi modal applications. 10

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