Total no. of Pages: ..... Roll no. .....

Degree: ...B.TECH..... Semester: ...7th.....

MID-SEMESTER EXAMINATION, September 2023

Max. Marks: 25
Duration: 1:30 Hours

Course Title: Responsible AI
Course Code: CACSE57

Note: - Attempt all questions in the given order only. Missing data/information (if any), maybe suitably assumed & mentioned in the answer.

Q. No.	Question	Marks	CO
1a	Illustrate accuracy vs. interpretability plots for different classifiers. Infer why there exist an inverse relationship.	2	CO1
1b	Describe feature split mechanism in decision tree classifier for non linear predictions. How EBM utilizes multiple decision trees to determine target features?	3	CO3
2a	Summarize the mathematical optimization problem used in LIME. Demonstrate the procedural steps of LIME algorithm to Heart-stroke scenario for any local explanation.	2	CO3
2b	Correlate the intuition behind shaply values usage in a black box model. Discuss the evaluation of shaply values and their significance for any feature value.	3	CO2
3a	How does Counter Factuals differ than LIME/SHAP. Why they known to be contrastive?	2	CO1
3b	Discuss the optimization problem in counter factual that leads to a change in prediction.	3	CO1
4a	Describe the mathematical expression and significance for relevance score computation in LRP. How does LRP evaluate the relevance for any individual pixel in an image?	2	CO2
4b	Discuss different privacy issues and their solutions in AI systems.	3	CO3
5a	Define Fairness in responsible AI. How does group fairness differs to individual fairness.	2	CO2
5b	In Graph Neural Network, for any node (with label 'Yes'), How do we find out which nodes and edges contributed in this prediction. Describe the procedural steps.	3	CO1