



Department of Artificial Intelligence and Machine Learning

Date: 12 / 01 /2026	Improvement Test	Max. Marks: 50 + 10
Semester: VII	UG	Duration: 2 hours
Course Title: Explainable Artificial Intelligence	Course Code: AI374TFB	

Part – A

Q. No.	Question	Marks	BT	CO
1.1	Faithfulness (fidelity) measures how accurately an explanation reflects the underlying model's true reasoning. Provide an example scenario in which this metric is useful.	2	L2	CO4
1.2	An explanation is considered sparser if it relies on fewer, more relevant features. How does sparsity help reduce cognitive load for users?	2	L2	CO4
1.3	In a medical diagnosis system, a model predicts a high risk of heart disease. There are two possible explanations, which one is causality, and why? 1. "Patients living in a certain region have a higher risk." 2. "High cholesterol levels caused the increased risk; reducing cholesterol would lower the predicted risk."	2	L2	CO4
1.4	Define the consistency metric used in XAI.	2	L1	CO4
1.5	If an explanation varies significantly in response to minor input changes, these metrics indicate that it is _____, signaling low _____.	2	L2	CO4

Part – B

Q. No.	Question	Marks	BT	CO
2.	Examine why model-agnostic explanation techniques may be less suitable for time-critical systems, despite their flexibility. Summarize your answer in five distinct points without any repetition.	10	L3	CO4
3.	A medical diagnosis system uses a machine learning model to predict whether a patient is at high risk of diabetes based on features such as blood glucose level, BMI, age, and family history. Analyze how sensitivity analysis can be used to evaluate the quality of explanations generated by an explainable AI model. Summarize your answer in five distinct points without any repetition.	10	L3	CO4
4.	A recruitment AI provides feature-importance explanations for candidate shortlisting. Apply cognitive and trust principles to explain how these explanations can reduce bias and support fair decisions. Summarize your answer in five distinct points without any repetition.	10	L3	CO4
5	An autonomous car uses AI to make driving decisions. Analyze how explanations should be presented to engineers, passengers, and traffic regulators to maintain safety and trust. Summarize your answer in five distinct points without any repetition.	10	L3	CO4
6	Discuss the working of any tools you have learnt/used in your EL assignment, and justify the purpose of use in your EL assignment.	10	L3	CO4