May-June 2024
(B. Tech) Program: Information Technology   Scheme II
Regular Examination: LY Semester: VIII
Course Code: ITDLC8031 and Course Name: Explainable AI and Responsible AI

Date of Exam: 23-05-2025   Duration: 2.5 Hours   Max. Marks: 60

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any **two** questions out of three: (05 marks each)	10		
a)	Explain the importance of explainability in AI systems.		CO1	U
b)	Discuss the limitations of regression models in the context of explainability.		CO2	A
c)	Compare the challenges or limitations that exist in the application of anchor method and other rule based methods of interpretability.		CO3	An
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	Examine why is it important to identify both prototypes and criticisms when analyzing a dataset.		CO4	An
b)	Consider a company facing a decision about implementing a new technology that could improve efficiency but may lead to job redundancies. Demonstrate how should the company assess and manage the ethical risks associated with this decision.		CO5	A
c)	Investigate how the core principles of Responsible AI help in gaining public acceptance.		CO6	C
Q.3	Solve any **two** questions out of three. (10 marks each)	20		
a)	Relate how can ALE plots reveal non-linear relationships between features like humidity or wind speed and bike rental counts. Explain with the help of suitable diagram.		CO3	An
b)	Given a machine learning model's decision, examine how can identifying minimal changes in input features through counterfactual explanations lead to a different desired outcome. Discuss with suitable case study.		CO4	An
c)	Investigate the outcomes of applying a Responsible AI framework in a specific industry. How did it affect stakeholder trust and system performance.		CO6	C

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Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	Identify and explain the core principles of Responsible AI. How do these principles ensure that AI systems uphold ethical standards and human values?		CO1	U
b)	Demonstrate what visualization methods can be employed to represent the decision rules generated by OneR. Provide examples using specific case study.		CO2	A
c)	Demonstrate how different visualization methods, such as SHAP value plots and LIME explanations, contribute to the interpretability of complex models. Include examples to support your discussion.		CO5	A

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