K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

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

Date of Exam: 18/05/2024 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.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	Explain importance of explainability in machine learning and AI systems.	02	CO1	Understand
ii)	Discuss the limitations of Logistic Regression Model in the context of explainability.	02	CO2	Understand
iii)	Explain challenges or limitations that exist in the application of Anchors for interpretability.	02	CO3	Understand
iv)	Explain how an ICE plot creates explanations.	02	CO3	Understand
v)	Explain the difference between prototypes and criticism.	02	CO4	Understand
vi)	Explain GAM Model of interpretability.	02	CO2	Understand
vii)	Explain how responsible AI contributes to building trust and public acceptance of AI technologies.	02	CO6	Understand
viii)	Explain how the ethical decision making process incorporates risk assessment and management.	02	CO5	Understand
Q.2	Solve any four questions out of six.	16		
i)	Explain the contribution of properties like interpretability and simplicity to the usability and user-friendliness of explanations.	04	CO1	Understand
ii)	Explain practical applications of feature importance analysis in linear regression.	04	CO2	Apply
iii)	Interpret the practical implications of the ALE plot in the bike rental prediction problem.	04	CO3	Apply

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iv)	Describe counterfactual explanations with suitable examples.	04	CO4	Understand
v)	Explain challenges in the use of responsible AI for Self driving car case study.	04	CO5	Understand
vi)	Sketch responsible AI framework for ABC software development company.	04	CO6	Apply
Q.3	Solve any two questions out of three.	16		
i)	Explain how the insights derived from Individual Conditional Expectation (ICE) plots compared to those obtained from Conditional ICE (C-ICE) plots differ. Analyze with the help of suitable case study and plots.	08	CO3	Analyze
ii)	Analyze how methods for identifying influential instances in machine learning models contribute to model interpretability and decision-making processes.	08	CO4	Analyze
iii)	Explain a case study to illustrate the practical applications of responsible AI framework.	08	CO6	Understand
Q.4	Solve any two questions out of three.	16		
i)	Explain expectations about AI's impact on ethics, morality, and human values in terms of responsible AI.	08	CO1	Understand
ii)	Create the visualization of predictions made by OneR algorithm for suitable case study.	08	CO2	Apply
iii)	Explain various ways of representing results of the interpretation methods with the help of suitable case study.	08	CO5	Understand

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