K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

May 2022 – June 2022

B.Tech Program: Information Technology

Examination: LY Semester: VIII

Course Code: 1UITDLC8031 and Course Name: Explainable AI and Responsible AI

Duration: 03 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)	List Properties of Explanations. Explain Any one.	2	CO1	Understand
ii)	Explain Convex and non-convex cost function logistic regression.	2	CO2	Understand
iii)	Gives Pros and Cons of KNN.	2	CO2	Understand
iv)	Explain ALE plot with suitable examples.	2	CO3	Understand
v)	List Properties of counterfactual algorithms.	2	CO4	Understand
vi)	List various pros and cons of prototypes.	2	CO4	Understand
vii)	Why ethical decision making is needed. Give reason.	2	CO5	Understand
viii)	Explain Main aims of Responsible AI.	2	CO6	Understand
Q.2	**Solve any four questions out of six.**	16		

i)	Differentiate with example model-specific and model-agnostic methods of interpretability.	4	CO1	Apply
ii)	Derive the formula for Gradient Descent Algorithm in logistic regression.	4	CO2	Analyze
iii)	Discuss advantages and disadvantages of PDP plot.	4	CO3	U
iv)	Illustrate methods and examples of Adversarial Interpretation.	4	CO4	Analyze
v)	Explain various parameters contributing to ethical decision making.	4	CO5	U
vi)	Give Responsible AI requirements and challenges	4	CO6	U
Q.3	**Solve any two questions out of three.**	**16**		
i)	List and explain the various ways of representing results of the interpretation methods.	8	CO1	Apply
ii)	Explain model-agnostic interpretation methods in terms of model, explanation and representation flexibility.	8	CO4	Apply
iii)	Apply ethics and responsibility for the electronics e-commerce Application.	8	CO5	Apply
Q.4	**Solve any two questions out of three.**	**16**		
i)	Interpret decisions made by rule-based algorithms with suitable examples.	8	CO2	Evaluate
ii)	Interpret the information from the PDP plot of bike rental prediction problem. Compare results of PDP plot with ILE plot.	8	CO3	Evaluate
iii)	How Beneficial is Responsible AI for Business. Explain the role of ethics and democracy in Governance Framework.	8	CO6	Analyze