RV College of Engineering®
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Department of Artificial Intelligence and Machine Learning

Date: 7/11/2025	**Test - 1**	**Max. Marks:50**
Semester: V	**UG**	**Duration: 2 Hrs**
Course Title: Machine Learning Operations [MLOps]		**Course Code:AI254TA**

Sl no	QUESTIONS – PART B	M	BT	CO
1a.	Compare DevOps and MLOps. Highlight the key similarities and differences in their objectives and workflows.	4	2	1
1b.	Analyze the technical and organizational challenges in implementing MLOps in large-scale enterprise environments and explain how they affect model scalability, collaboration, and governance.	6	4	3
2a.	With a neat diagram, elaborate the process of ML Life Cycle	6	2	1
2b.	A health-tech company is developing a machine learning system to predict patient readmission risk for hospitals. The MLOps team includes data scientists, data engineers, DevOps specialists, and a Subject Matter Expert (SME) — a senior clinician with deep medical domain knowledge. List down the role of SME in this scenario	4	2	1
3	A national bank has deployed a Credit Risk Prediction ML model that assesses whether a customer is likely to default on a loan. Initially, the model performs well with an accuracy of 92%. However, after six months, the following issues arise: • The model begins misclassifying new types of customers due to changes in economic conditions. • Incorrect predictions start leading to financial losses and biased lending decisions. • The operations team finds it difficult to trace which model version is running in production. • Data quality issues (missing or inconsistent customer data) cause the model's reliability to drop. Analyse the various risks associated with deploying machine learning models in a banking environment, and explain how these risks can be identified, assessed, and mitigated to ensure trust, compliance, and consistent performance." Depict the risk matrix to support your answer.	10	4	5
4a.	Elaborate on how iteration and feedback contribute to the improvement and refinement of models in the Machine Learning life cycle.	4	2	1
4b.	Green Energy Insights, a renewable energy analytics firm, leverages AI models to forecast energy demand, optimize power generation, and detect equipment faults. With diverse data sources from IoT sensors	6	5	3

	and smart grids, ensuring data accuracy, transparency, and regulatory compliance became difficult. Justify how implementing a unified data governance framework would be a novel solution in the given scenario.			
5	Discuss the role of data exploration, feature engineering, and selection in the model development process.How do these steps impact the overall performance of the machine learning model.	10	2	2

M-Marks, BT-Bloom's Taxonomy Levels, CO-Course Outcomes

Marks Distribution	Particulars	CO1	CO2	CO3	CO4	CO5	L1	L2	L3	L4	L5	L6
	Max Marks CIE & Quiz	18	1	12	-	10	18	5	21	-	6	-