CBCS SCHEME

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BAD714C

C.M.R. INSTITUTE OF TECHNOLOGY BANGALORE

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026

Data Engineering and ML Ops

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain in detail major under currents across the data engineering lifecycle.	10	L2	CO1
	b.	Explain with diagram source system as an application database and source system as IoT swarm and message queue.	10	L2	CO1
		OR			
Q.2	a.	Explain Data Engineering Lifecycle five stages.	10	L2	CO2
	b.	Explain Data Maturity and Data Engineer step by step.	10	L2	CO2
		Module – 2			
Q.3	a.	Briefly explain in detail about team size and capabilities also explain speed to market.	10	L2	CO2
	b.	Explain in detail about types of Data Architecture.	10	L2	CO2
		OR			
Q.4	a.	Explain in detail about principles of Good Data Architecture.	10	L2	CO2
	b.	Explain in detail about major architecture concepts.	10	L3	CO2
		Module – 3			
Q.5	a.	Explain in detail different ML algorithms.	10	L3	CO3
	b.	Explain about cross checking model behavior in detail.	10	L2	CO3
		OR			
Q.6	a.	Explain in detail ML Ops challenges.	10	L2	CO
	b.	Explain about risk assessment and risk mitigation.	10	L2	CO
		Module – 4			
Q.7	a.	Explain in detail about deployment strategies and categories of model deployments.	10	L2	CO4
	b.	Explain in detail about containerization, scaling deployments and requirements and challenges.	10	L2	CO4
		OR			
Q.8	a.	Explain in detail about adaptation from development to production environment.	10	L2	CO4
	b.	Explain Data Access before validation and launch to production, also explain about final though on runtime environments.	10	L3	CO4
		Module – 5			
Q.9	a.	Explain in detail about model evaluation.	10	L2	CO5
	b.	Explain in detail about online evaluation.	10	L2	CO5
		OR			
Q.10	a.	Explain in detail about understanding model degradation.	10	L2	CO5
	b.	Explain how often should model be retrained.	10	L3	CO5

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