RV22A58,
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Department of Artificial Intelligence and Machine Learning

Date: 15.12.2025	Test – 2	Max. Marks: 10 + 50
Semester: VII	UG	Duration: 2 Hrs.
Course Title: Stream Processing and Analytics		Course Code: AI372TA

Common to AIML and CSE (Data Science)

PART A

Scheme and Solution

S. No	Questions	M	BT	CO
1	List the three message delivery semantics.	2	2	2
2	Discuss the methods to handle broker crash in a stream processing environment?	2	2	2
3	Justify Kafka as an effective data pipe line during streaming data	2	2	2
4	What are the two sources of Kafka connect?	2	2	2
5	Define : (i) Regex Router (ii) Time Stamp Router	2	2	2

PART B

S. No	Questions	M	BT	CO
1a.	Elaborate the need for message queueing tier in stream processing?	06	03	03
1b.	Discuss the key aspects of durable messaging	04	2	2
2a.	With a neat diagram, elaborate the working of the producer, the broker, and the consumer with a message queuing layer	10	2	2
3	Consider a real-time fraud detection in online transactions. If a data pipeline is to be built using Kafka, list and elaborate the various considerations for implementation .	10	3	2
4	With a neat diagram and example, discuss how kafka handles the table-table and streaming joins?	10	03	03
5.	An e-commerce platform needs to process customer orders asynchronously to ensure scalability. Instead of directly handling orders in a monolithic database, the system uses Kafka to: • Allow multiple services (inventory, payment, shipping) to consume order events independently. • Ensure fault-tolerant processing with retry mechanisms. Implement Kafka producer and consumer for the given scenario using appropriate code.	10	03	03