Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U8307

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Professional Elective

21ITV307 STREAM PROCESSING

(Common to CSBS Engineering branches)

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Define data processing.	CO1 U	
2.	Why stream processing needed?	CO1 U	
3.	Define ETL.	CO1 U	
4.	Define Stream Processor	CO1 U	
5.	List out the Benefits and Weaknesses in the Relational Model.	CO1 U	
6.	Define SPARQL.	CO1 U	
7.	List the role of the offset.	CO1 U	
8.	How do consumers consumes messages in Kafka?	CO2 App	
9.	Can you change the schema of a streaming data frame during processing?	CO2App	
10.	Define Watermarking.	CO1 U	

PART – B (5 x 16= 80Marks)

11.	(a)	You are a data engineer at a large financial institution. The company wants to enhance its fraud detection capabilities by analyzing transactions in real-time. What are the goal to identify suspicious transactions as they occur and prevent fraudulent activities.	CO3 Ana	(16)

Or

	(b)	You are designing a data management system for a small e-commerce company. The system needs to handle customer data, product information, and transaction records. The company anticipates a growing number of users and transactions over the next few years. You need to decide on the appropriate storage and processing solutions to ensure efficient performance and scalability.	CO3 Ana	(16)
12.	(a)	An IOT network in a manufacturing plant needs to monitor equipment performance and predict failures in real-time. How will you apply the plant implement a real-time data processing system that not only monitors equipment status but also predicts potential failures before they occur?	CO2 App	(16)
		Or		
	(b)	Compare and contrast the use of batch ETL tools versus real-time ETL tools for handling data from an online retail platform. What are the advantages and limitations of each approach in the context of real-time sales tracking and historical analysis?	CO2 App	(16)
13.	(a)	Explain the different types in NoSQL with a neat diagram.	CO1 U	(16)
		Or		
	(b)	Explain the Benefits of Standardization of Graph Query Languages	CO1 U	(16)
14.	(a)	Explain Event Streaming architecture with neat diagram.	CO1 U	(16)
		Or		
	(b)	Give a brief note on Important Server concepts in Apache kafka	CO1 U	(16)
15.	(a)	How will you process real-time data streams in structured streaming?	CO2 App	(16)
		Or		
	(b)	How Real-Time Data Correction work in stream processing?	CO2 App	(16)