Name:

Enrolment No:

UPES

End Semester Examination, May 2025

Course: System Monitoring **Semester: VI**

Program: B.Tech CSE **Time : 03 hrs.**

Course Code: CSDV3013 **Max. Marks: 100**

Instructions: Please mention your **specialisation and batch number** on top of your answer sheet.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q1	Name the anomalies in system behaviour, and how can monitoring help detect them?	**4**	**CO1**
Q2	Describe the importance of minimizing false alarms in system monitoring.	**4**	**CO1**
Q3	Discuss the role of logs, alerts, and graphs in system monitoring. Give a use case for each.	**4**	**CO2**
Q4	List and briefly explain any four layers in a multi-layered monitoring architecture.	**4**	**CO3**
Q5	Differentiate between monitoring potential faulty entities and existing faulty entities.	**4**	**CO4**

SECTION B
(4Qx10M= 40 Marks)

Q6	Create a monitoring plan for a web application by defining what metrics should be monitored at each of the following layers: • Application Layer • Process Layer • Server Layer • Hosting Provider Explain your choices logically.	**10**	**CO1**
Q7	Given a scenario where users report slow response time, but CPU and memory usage are low, outline a logical multi-layer diagnostic approach using system monitoring principles. What could be the possible causes?	**10**	**CO4**
Q8	Explain the concept of continuous improvement in system monitoring. Propose a feedback loop system that uses monitoring results to iteratively enhance system performance.	**10**	**CO3**
Q9	Assume you are setting up a custom Nagios configuration for monitoring 50 servers.	**10**	**CO2**

	• Describe how you would logically organize checks (CPU, memory, disk, services). • How would you automate alerts and avoid alert fatigue among the sysadmin team? OR You are monitoring a payment system in a high-traffic e-commerce environment. Design a fault monitoring strategy considering potential and existing faults. What metrics will you prioritize and why?		
SECTION-C (2Qx20M=40 Marks)			
Q10	How the principles of automation, early detection, and minimal false alarms can be balanced in an enterprise-grade monitoring solution? Explain. • Evaluate the trade-offs between proactive and reactive monitoring strategies. • Suggest how AI/ML can be used to enhance automated system monitoring and anomaly detection. Support your answer with examples or hypothetical scenarios.	**20**	**CO3**
Q11	Design an end-to-end system monitoring framework for a cloud-based video streaming platform. Your design should cover: • Layer-wise metrics to be monitored (Application, Process, Server, Hosting Provider, External Dependencies, User) • Tools and techniques for monitoring each layer • Strategy for handling false positives and alert prioritization Provide a diagram and explain the logic behind each component in your plan. OR A company receives user complaints of high latency on their app, especially during peak hours. However, resource utilization appears normal. Task: • Propose a step-by-step diagnostic approach using logs, graphs, and alerts. • How would you correlate data from different layers to trace the root cause? Suggest improvements to the monitoring system to ensure early detection in the future.	**20**	**CO4**