R22 Regulation *Subject code: 4E6EA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, November 2025

DEVOPS

(CSE)

Maximum Marks: 60 Date: 19.11.2025 **Duration: 3 hours**

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	List out the main objective of DevOps?	1M	CO1	1
b)	What does CI/CD stand for in DevOps?	1M	CO1	1
c)	What does "resilient software architecture" aim to ensure?	1M	CO2	1
d)	Give the benefit of using containers like Docker in DevOps.	1M	CO2	1
e)	Name a popular platform used for Git-based project hosting.	1M	CO3	1
f)	What does git merge do?	1M	CO3	1
g)	What is a Jenkins pipeline?	1M	CO4	1
h)	Name a common build tool used with Java in Jenkins pipelines.	1M	CO4	1
i)	Which JavaScript framework is commonly used for backend testing?	1M	CO5	1
j)	Name a popular tool used for container orchestration.	1M	CO5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Explain the key differences between the Agile development model and DevOps. How do they complement each other in modern software delivery?	5M	CO1	3
	b) Discuss the relationship between DevOps and ITIL. How can ITIL practices be integrated with DevOps for better service delivery?	5M		3
	OR			
3	a) Compare and contrast Scrum and Kanban methodologies. When would you choose one over the other in a software development project?	5M	CO1	3
	b) Outline the major roles in a Scrum team. How do these roles contribute to effective agile development?	5M		2
4	a) Explain the DevOps lifecycle and how it contributes to achieving business agility.	5M	CO2	2
	b) What are the key principles or "rules of thumb" for designing software architecture in a DevOps environment? Explain with examples.	5M		3

	OR			
5	a) Discuss how continuous testing fits into the DevOps lifecycle. Why is it essential for improving software quality and reducing time-to-market? b) What is the role of architecture in achieving resilience in a DevOps-based system? Discuss with examples.	5M 5M	CO2	3 4
6	a) Why is source code control essential in modern software development? Discuss its benefits with respect to collaboration, versioning, and traceability. b) Explain the role of Docker in source code management and DevOps workflows. How does Docker complement Git-based development?	5M 5M	CO3	3 3
	OR			
7	a) Explain the key roles in a source code management workflow. How do these roles contribute to quality control and collaboration? b) What is Gerrit and how does it differ from other Git-based tools? Discuss its use in code review and continuous integration.	5M 5M	CO3	2 6
8	Explain how Jenkins manages build dependencies and organizes build phases. Provide an example of a multi-stage build pipeline and how dependencies are resolved.	10M	CO4	4
	OR			
9	Discuss how builds can be structured by dependency order in a large-scale project. How does this impact build performance and reliability?	10M	CO4	4
10	Explain test-driven development (TDD) and REPL-driven development. How do they differ, and what are the benefits and challenges of each?	10M	CO5	3
	OR			
11	What is Docker, and how does it enhance application deployment? Explain the benefits of containerization compared to traditional deployment methods.	10M	CO5	3