R22 Regulation *Subject code:4P5GC&4E5HC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B. Tech V Semester Supplementary Examinations, April 2026

DEVOPS

(Common to CSE(AIML)&CSE(DS))

Maximum Marks: 60 Date:22.04.2026 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	BTL
1.a)	Define the term Release Management	1M	1	L1
b)	What is Scrum in the context of a delivery pipeline?	1M	1	L1
c)	Explain the DevOps Lifecycle for Business Agility	1M	2	L2
d)	How does DevOps support the separation of concerns?	1M	2	L2
e)	Illustrate the purpose of Docker intermission in the context of Git servers.	1M	3	L3
f)	What is a hosted Git server?	1M	3	L3
g)	Analyze the role of a host server for running Jenkins	1M	4	L4
h)	What is meant by collating quality measures during a build?	1M	4	L4
i)	Explain the concept of REPL-driven development.	1M	5	L2
j)	Name two Deployment tools besides Puppet and Ansible.	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Apply DevOps principles to a traditional software development environment and identify the key challenges it helps to address, such as the friction between Development and Operations teams. b) Outline the main characteristics of a Kanban board and explain how it helps in visualizing the workflow and delivery pipeline.	5M 5M	1	L3
	OR			
3	a) Compare and contrast DevOps principles with the traditional ITIL framework, focusing on their respective approaches to change management. b) Develop a flow chart to visually represent the stages and feedback loops within a typical DevOps process that achieves Continuous Delivery.	5M 5M	1	L3

4	a) Explain the architecture rules of thumb a developer should follow when designing a system for a DevOps environment. b) Illustrate the concept of DevOps, architecture, and resilience. For example, describe a failure scenario in a non-resilient architecture and explain how a DevOps-influenced architecture (like microservices) would handle it better.	5M 5M	2	L3
	OR			
5	a) Apply the knowledge of the DevOps lifecycle to enhance business agility in a software development model. b) Analyze how the presence of a monolithic scenario makes Continuous Testing difficult, and how evolving to a microservice architecture simplifies testing.	5M 5M	2	L3
6	Explain the use of Gerrit as a code review tool and its integration with Git. For example, describe the key difference in the workflow of Gerrit vs. a standard Pull Request on GitHub.	10M	3	L3
	OR			
7	Outline the necessary steps to effectively utilize Git-based tools and platforms in a large project development, focusing on robust branching and merging strategies.	10M	3	L3
8	a) Critically strategize the approach for building by dependency order in a complex system build. For example, in a multi-module project, detail the steps a build server would take to ensure all dependencies are resolved before final compilation. b) Design a sophisticated build pipeline using Jenkins for effective system integration, showing all critical stages (e.g., source checkout, compile, unit test, integration test).	5M 5M	4	L4
	OR			
9	a) Explain the significance of collating quality measures (like code coverage, static analysis results) during the build process. b) Demonstrate advanced proficiency in configuring a Jenkins build server, including setting up the host server, configuring triggers, and integrating build slaves.	5M 5M	4	L4
10	Evaluate the deployment tools Chef and Salt Stack in terms of their architecture (e.g., Master/Agent vs. Agentless/Pillar) and suitability for different organizational needs.	10M	5	L4
	OR			
11	Assess the advantages and disadvantages of deploying a system using virtualization stacks versus a Configuration Management tool like Puppet/Ansible. Which approach is better for immutable infrastructure and why?	10M	5	L4