Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: Continuous Integration and Continuous Delivery **Semester: V**
Program: BTech CSE (DevOps) **Time : 03 hrs.**
Course Code: CSDV3009 **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Illustrate the continuous delivery and the continuous deployment practices with brief discussion of various benefits or limitations observed in both.	**4**	**CO1**
Q 2	Discuss and contrast centralized and distributed VCS, with an example.	**4**	**CO3**
Q 3	Demonstrate the role of Jenkins in CICD process, with an example.	**4**	**CO3**
Q 4	Support or critique the TDD practice in continuous deployment environment.	**4**	**CO2**
Q 5	Outline the issues caused by infrequent integration practices, popularly referred as integration hell.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Explain build process in your own words. List any two categories of build tools followed by a brief discussion on the Functionality, Usability, and Reliability aspects of a build tool selection/evaluation.	**10**	**CO3**
Q 7	Outline the impact of a total of five continuous integration practices, including the following three: 1. Maintain a single source repository. 2. Make your build self-testing. 3. Every commit should build the mainline on an integration machine.	**10**	**CO1**
Q 8	Analyze the association between code smells and code quality. Further, outline the other approaches used for static code analysis and their motivation. Finally, illustrate the identification and mitigation strategy for the following code smells: 1. Long method smell 2. Feature envy smell	**10**	**CO4**
Q 9	Contrast the applicability of Blue-green deployment and Canary release. Further, design a deployment/release scenario and provide	**10**	**CO2**

	arguments to support the selection of either of the two approaches. OR Explain functional and non-functional requirements of software. Design a scenario (via citing an application/user-requirements) to exhibit the need for implementing/not-implementing any three non-functional requirements. Provide arguments to justify your claim.		
SECTION-C (2Qx20M=40 Marks)			
Q 10	Design a scenario that shows the impact of Testing (or its absence) on software development process. Further, illustrate the benefit(s) each of the following categories of testing provide to various stakeholders 1. Unit Testing 2. Integration Testing 3. Acceptance Testing 4. Regression Testing 5. Smoke Testing 6. Exploratory Testing	**20**	**CO2**
Q 11	Illustrate and explain various phases of continuous Deployment. Restrict the discussion of each phase around tools, best practices, and benefits. OR Explain the continuous integration workflow with help of a diagram illustrating the phases and activities that take place from commit to notification from CI Server. Further, describe various activities of a developer in the context of continuous integration with emphasis on their impact if not followed or their order is changed. Finally, outline the benefits of CI from a developer's perspective.	**20**	**CO3**