Name: Enrolment No:	

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

Course: Application Containerization and Orchestration Semester: V
Program: B.Tech. CS + DevOps   Time   : 03 hrs.
Course Code: CSDV3010   Max. Marks: 100

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q1.	Differentiate between virtualization and containerization with suitable example.	4	CO1
Q2.	Define Docker. Explain its major advantages with a suitable example.	4	CO1
Q3.	Differentiate between a Docker Image and Docker Container. Write any five Docker commands used for Container.	4	CO2
Q4.	Explain the lifecycle of a Docker Container? Write suitable command for each phase.	4	CO4
Q5.	Explain Kubernetes. Differentiate between Docker Swarm and Kubernetes.	4	CO2

SECTION B
(4Qx10M= 40 Marks)

Q6.	Write a short note on following
	   a) Docker Network
	   b) Docker Volume
		10	CO1

Q7.	Explain the significance of Dockerfile. Write a Dockerfile contains Seven Layers and explain each layer in detail.	10	CO1
Q8.	Define Containerization Technology. Enlist the significance of Containerization in DevOps. Explain with a proper Diagram.	10	CO3
Q9.	Define orchestration. How does Docker support orchestration? Explain various concepts used in Docker Swarm with some proper Docker commands.	10	CO3

	OR Enlist different network drivers used in Docker. Enlist the default Docker network driver, and how can you change it when running a Docker image?		
SECTION-C **(2Qx20M=40 Marks)**			
Q10.	Explain Container Dependency? Explain Docker-compose file. Outline the significance of this file in Docker Containerization Technology. Write a docker-compose file to start MYSQL and NGINX micro service simultaneously.	**20**	**CO2**

Q11.	Explain
	    a) Container Monitoring
	    b) Docker Hub
	    c) Vagrant and Vagrant Cloud
	
	OR
	Explain the following
	    a) Amazon Kubernetes Services
	    b) Azure Kubernetes Service
		20	**CO4**