Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Managing Virtual Environment   **Semester: VI**
Program: B. Tech. (CS+DOps)   **Time 03 hrs.**
Course Code: CSDV4005   **Max. Marks: 100**

Instructions: Attempt all questions.

SECTION A

Each Question will carry 4 Marks

S. No.		Marks	CO
Q 1	Discuss the importence of managing the virtual environment? Define the role of middle layer in virtual environment.	2 + 2	CO1
Q 2	Define the different ways of managing traditional virtual environments	4	CO3
Q 3	List out the potential advantages of virtual environment.	4	CO1
Q 4	Define different monitoring techniques to measure the performance of Virtual Environment	4	CO1
Q 5	Explain different performance metrics for virtual environment	4	CO3

SECTION B

Each Question will carry 10 Marks

Q 6	Explain the Change Management along with the 7 R's of Change Management.	4+6	CO2
Q 7	Demonstrate the use of different tools and Technologies in Managing the Virtual Environment.	10	CO2
Q 8	Define and explain the suitable Security Architecture used in virtual environments. Use diagrams where needed.	6+4	CO3
Q 9	Q) Explain the following: a) Configuration Management b) Change management	5+5	CO3

SECTION-C

Each Question will carry 20 Marks

Q 10	**Case Study:** Firebase Authentication for Fabulous Fabulous is a research-based app incubated in Duke University's Center for Advanced Hindsight. The app helps users to embark on a journey to resetting poor habits, replacing them with healthy rituals, with the ultimate goal of improving health and well-being. **Platforms:** Android and iOS **Features Used** • Firebase Authentication Database • Firebase UI • Support for Email / Password , Google Sign-in and Facebook Login **Challenges**: Fabulous wanted to implement an onboarding flow that was very easy to use, required minimal updates, and reduced friction with the end user. Fabulous had a few key requirements for using a 3rd party authentication system: First, Fabulous wanted to ensure that users could experiment with the app anonymously and then sign-up the next day. Second, Fabulous wanted the flexibility to sign-in users using multiple providers, like Facebook Login or Google Sign-in and then have the authentication system recognize the user even if they tried signing in via a different method. Third, Fabulous wanted to preserve the look-and-feel of its app on onboarding pages. **Kindly provide authentication solution to the above listed problems**.	**20**	**CO4**
Q 11	**Case Study:** Service Virtualization in a VMware Environment One of the New Zealand government's largest departments is migrating its software testing platform from the physical world to the virtual world, empowering its development teams to create and launch new testing environments in minutes. This revolution enables testing to commence at a much earlier stage and allows multiple projects to be tested in parallel. Not only does this reduce the time taken to complete projects, it also significantly improves both their quality and reliability. The government agency has over 1000 employees spread across multiple offices throughout New Zealand. **Challenges**: The department's software development procedures had exceeded their architectural limits; Projects were taking longer than necessary and costing more due to the serial nature of the software development lifecycle. The impact of this was outages due to niggling issues that should have been resolved during the testing phases earlier in the project.	**20**	**CO5**

During a 2012 review of its corporate risks, the organization's Chief Information Officer identified several factors that were causing these issues. The software development testing environment did not accurately replicate its live environment, resulting in ineffective testing. Furthermore, it only allowed one project to be tested at a time, which created significant bottlenecks – especially as projects neared completion.

"Project performance didn't match expectations and troubleshooting was difficult, especially when trying to reproduce an incident in the test environments," explained Lee Clements, Technical Account Manager at VMware Professional Services.

"Our review identified the need for multiple isolated test environments that properly simulated production. They also needed projects to be tested at a much earlier stage in the software lifecycle – when it is easier and cheaper to fix coding and design errors," he said.

Large projects have multiple teams working in silos and they were unable to test their code until all the teams had completed their tasks. This often resulted in gridlock, with components having to wait months before testing could commence; everything was sequential and dependent on the previous step.

Even after that initial delay, the test environment would have been left in an unknown state by previous testers so new projects would have to wait until the development and operations teams had reset the test environment – a labour intensive process that could take weeks to complete.

Kindly provide authentication solution to the above listed problems