

### 1. Qtext :

(a) Pfizer have their Data Centre (Production Centre) on Google Public Cloud in Ohio State in USA. The data Centre is built with proper Network resources, VPC, Sub-nets, load balancers, Fire walls etc. to deploy the Pfizer e-commerce application on to the Ohio Environment. Pfizer also wanted to have a Disaster Recovery Centre in another Region (Seattle), but they wanted to have Data Centre and Disaster Recovery Centre in Active-Passive mode. How do you build DR Environment on demand with Infra as Code using Terraform? PI lay down the Architecture with all the steps, for the same. 6 Marks

(b) If resources are locked into a particular configuration which does have preset values for CPU, Memory, Networking that does not expand as demand grows and does not shrink when there is no demand. Then what kind of mechanism will you use on Cloud. Explain with an example. Also how do you control the economics of the resources on the cloud when you adopt to the specified mechanism. 3 Marks

### 2.

#### Qtext :

(a) Being a project manager, you are given the task of testing and deploy a new Version (V2) of a mission critical software. The existing version (V1) is now running live. Define a deployment strategy to effectively migrate the current live version with the new version with minimal risk and downtime. Draw a simple schematic of the deployment strategy with various servers and routers involved in it. (Answer your question in terms of Blue/Green Deployments) 5 Marks

(b) A leading Europe healthcare player with a large IT structure wanted to adopt agile and DevOps practices to gain true business value. They want to reduce the release cycle time from 12 weeks to 3-4 weeks. Currently they use Java based technologies for waterfall SDLC development of their monolithic applications and they plan to move into cloud. Their team size is 26 where their efforts are distributed among development, manual testing and operations. Please recommend a suitable deployment pipeline that brings business value in terms of faster feature releases, better service quality, efficient deployments with scale and cost optimization. While you recommend a deployment pipeline, please write the suitable tools for each stage including continuous monitoring. Explain the benefits. 5 Marks

### 3.

#### Qtext :

What is virtualization? How is Containerization different from Virtualization? Discuss Docker, Kubernetes and AWS lambda and its suitability to the DevOps implementation. Explain each of these with an example. (2+2+2)

### 4. Qtext :

(A) A major bank has been observing lots of incidents of late. On close analysis they found that sometime there is performance issue on VMs, and they are not receiving any alerts for the same. Also, there is no dashboard for application metrics e.g., user login should happen in 5 seconds, payments should be processed in 2 seconds. As there is no application metrics specific dashboard, by the time issue impacts the end user, it's too late.

Based on the information provided, please answer the following-

(a) Will you recommend Top-down monitoring approach here, or Bottom-Up monitoring approach? And why? 3 marks

(b) Recommend some application monitoring tool which could be considered. Application is written in Java. 2 marks

(c) As application is deployed on AWS EC2 AutoScalingGroup, so scaling up and scaling down is a norm, so how we can ensure that new instances coming up because of scaling has entire monitoring enabled. 2 marks

(B) ABC organization would like to monitor the following scenarios occurring at their end continuously:

- (a) Suspicious Login Attempts                      1 mark
- (b) Network Failure or downtime                      1 mark
- (c) User sessions, buffer cache                      1 mark
- (d) Tracking VMs                      1 mark

ABC Organization must apply Application Monitoring, Network Monitoring, Database Monitoring or Security Monitoring for each of these scenarios. Select the correct monitoring type and explain your choice.                      4 Marks