

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Theory Exam-III, May 2022
Bachelor of Computer Application, Semester-IV, 2021-22

Roll No.....

CS1127: Virtualisation and Cloud Computing

Time: 2 hours

Max. Marks: 20

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Mention all the assumptions for your answers clearly.

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| Q. 1 | You plan to use Cloud Vision to analyze images and extract text seen in the image. You plan to process between 1,000 and 2,500 images per hour. How many VMs should you allocate to meet peak demand? | 2.0
(CO1) |
| Q. 2 | You have an application that uses a Pub/Sub message queue to maintain a list of tasks that are to be processed by another application. The application that consumes messages from the Pub/Sub queue removes the message only after completing the task. It takes approximately 10 seconds to complete a task. It is not a problem if two or more VMs perform the same task. What is a cost-effective configuration for processing this workload? Why? | 2.0
(LO1) |
| Q. 3 | An app for a finance company needs access to a database and a Cloud Storage bucket. There is no predefined role that grants all the needed permissions without granting some permissions that are not needed. You decide to create a custom role. When defining custom roles, you should follow which of the principles? | 2.0
(CO2) |
| Q.4 | A mobile application uploads images for analysis, including identifying objects in the image and extracting text that may be embedded in the image. A third party has created the mobile application, and you have developed the image analysis service. You both agree to use Cloud Storage to store images. You want to keep the two services completely decoupled, but you need a way to invoke the image analysis as soon as an image is uploaded. How should this be done? | 2.0
(CO2) |
| Q.5 | You have acquired a 10 GB data set from a third-party research firm. A group of data scientists would like to access this data from their statistics programs written in R. R works well with Linux and Windows file systems, and the data scientists are familiar with file operations in R. The data scientists would each like to have their own dedicated VM with the data available in the VM's file system. What is a way to make this data readily available on a VM and minimize the steps the data scientists will have to take? | 2.0
(CO2) |

- Q.6 A new engineer is trying to set up alerts for a Kubernetes cluster. The engineer seems to be creating a large number of alerts and you are concerned this is not the most efficient way and will lead to more maintenance work than required. You explain that a more efficient way is to create alerts and apply them to what? 2.0 (CO3)
- Q.7 You work for a start-up, and costs are a major concern. You are willing to take a slight performance hit if it will save you money. How should you configure the scaling for your apps running in App Engine? 2.0 (CO3)
- Q.8 You have a website hosted on a Compute Engine VM. Users can access the website using the domain name you provided. You do some maintenance work on the VM and stop the server and restart it. Now users cannot access the website. No other changes have occurred on the subnet. What might be the cause of the problem? 2.0 (CO4)
- Q.9 A VM instance is trying to read from a Cloud Storage bucket. Reading the bucket is allowed by IAM roles granted to the service account of the VM. Reading buckets is denied by the scopes assigned to the VM. What will happen if the VM tries to read from the bucket? 2.0 (CO4)
- Q.10 You are viewing log entries and spot one that looks suspicious. You are not familiar with the kind of log entry, and you want to see the complete details of the log entry as quickly as possible. What would you do? 2.0 (CO5)