



The Co-operative University of Kenya

END OF SEMESTER EXAMINATION AUGUST-2022

**EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE COMPUTER
SCIENCE**

(YEAR4 SEMESTER2)

UNIT CODE: BCIT 3219/BCIT 4141

UNIT TITLE: CLOUD COMPUTING

DATE: AUGUST 2022

TIME: 2 HOURS

Instructions to Candidates:

- Answer question **ONE (compulsory)** and any other **TWO** questions

QUESTION ONE:

- (a) (i) What is multi-tenant design? (1 Marks)
(ii) Why is it important feature in cloud computing? (2 Marks)
- (b) Cloud computing is a paradigm of computing, a new way of thinking about IT industry, but not any specific technology. Discuss any three central ideas of cloud computing. (6 Marks)
- (c) How can cloud provider know users' usage? (3 marks)
- (d) Discuss two ways which you can use to achieve availability and reliability of a system? (4 Marks)
- (e) Users do not care about how the works are done. Instead, they only concern about what they can get". Discuss this in relation to cloud computing (5 Marks)



- (f) Discuss Authenticate, Authorise and Audit as used in Cloud services identity management (6 Marks)
- (g) Give 3 disadvantages of adoption of private cloud as opposed to public cloud. (3 marks)

QUESTION TWO:

- (a) What is service level agreement (SLA) in cloud computing? Discuss four important contents of an SLA (10 Marks)
- (b) Discuss three virtualization techniques commonly used in cloud computing environment (6 Marks)
- (c) You have acquired a PaaS from Amazon Web Services. Provide any four responsibilities of the AWS in the shared responsibility model. (6 Marks)

QUESTION THREE:

- (a) Disaster recovery is one of the mechanisms for cloud computing system resilience. Discuss any two strategies to achieve this. (4 marks)
- (b) Discuss any three security and privacy issues in cloud computing. (6 marks)
- (c) Discuss three types of virtualization techniques commonly used in cloud computing environment. (6 Marks)
- (d) Name the enabling technique for the following:
 - i. SAAS
 - ii. IAAS
 - iii. PAAS(4 marks)

QUESTION FOUR:

- (a) Your organisation has recently subscribed to Amazon AWS PAAS cloud service. Discuss the shared responsibility model, giving 2 examples of responsibility for each. (8 marks)
- (b) Giving examples, discuss the four cloud deployment models (8 marks)
- (c) Give two ways in which data in transit can be encrypted and 2 ways in which data at rest can be encrypted in cloud computing security. (4 marks)



QUESTION FIVE:

- (a) Compare Amazon Simple Storage Service (S3) and Amazon Elastic Compute Cloud (EC2) cloud services. (4 marks)
- (b) Discuss any 3 ways in which vendor lock-in problem can be avoided in cloud computing. (6 marks)
- (c) Cloud security is constantly evolving, but a handful of best practices have remained constant for ensuring the security of cloud environments. Organizations should consider these tips and tools to ensure that sensitive applications and data don't fall into the wrong hands. Discuss any 5 of these cloud security best practices. (10 marks)

