



*(University of Choice)*

# **MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY**

## **(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2021/2022 ACADEMIC YEAR**

**FOURTH YEAR EXAMINATIONS**

**FOR THE DEGREE**

**IN**

**COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

**COURSE CODE: BIT 422E**

**COURSE TITLE: CLOUD COMPUTING AND EMERGING TECHNOLOGIES**

**DATE: Thursday 21<sup>st</sup> April, 2022**

**TIME: 8:00-10:00AM**

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### **INSTRUCTIONS TO CANDIDATES**

- Answer Questions ONE and ANY OTHER TWO.  
**TIME: 2 Hours**

### **Question 1 COMPULSORY (30 MARKS)**

- a) Briefly explain what you understand by cloud computing. (3 marks)
- b) Cloud services can be offered in three main ways. Name and briefly explain each of these categories giving an example of each. (9 marks)
- c) Cloud computing can be offered as Public Cloud, Private Cloud, Hybrid Cloud or Community Cloud. Briefly explain each of these categories (8 marks)
- d) Briefly explain 5 advantages of moving to cloud computing (10 marks)

### **Question 2 (20 MARKS)**

- a) IDaaS offers management of identity information as a digital entity. This identity can be used during electronic transactions in servers and cloud computing. Name and explain three types of IDaaS (9 marks)
- b) NaaS allows us to access to network infrastructure directly and securely. Explain any five advantages that NaaS provides. (5 marks)
- c) Explain any three **specific** issues associated with PaaS (6 marks)

### **Question 3 (20 MARKS)**

- a) Before deploying applications to cloud, it is necessary to consider your business requirements. Name and explain any five issues one must consider. (10 marks)
- b) Name and explain five characteristics need to exist to a meaningful extent in an IT environment for it to be considered a Cloud environment. (10 marks)

### **Question 4 (20 MARKS)**

- a) Briefly explain the following technologies:
- Virtualization
  - Service-Oriented Architecture (SOA)
  - Grid Computing
  - Parallel Computing
  - Utility Computing
- (10 marks)
- b) Emerging technologies are technologies whose development, practical applications, or both are still largely unrealized. Name and explain any **five** emerging technologies you know of besides cloud computing. (10 marks)

**Question 5 (20 MARKS)**

- a) Since all the data to and from the cloud is transferred using Internet, data security is of major concern in the cloud. State and explain four key mechanisms for protecting data in the cloud. **(8 marks)**
- b) Explain what the Cloud Security Alliance (CSA) stack model is. **(4 marks)**
- c) Explain the role of the following cloud players:
- Cloud Provider
  - Cloud Consumer
  - Cloud Service Owner
  - Cloud Resource Administrator
- (8 marks)**