



**KAIMOSI FRIENDS UNIVERSITY
FOURTH YEAR SECOND SEMESTER UNIVERSITY
EXAMINATIONS
2025/2026 ACADEMIC YEAR**

SPECIAL EXAMINATIONS

**FOR THE DEGREE OF BACHELOR OF SCIENCE INFORMATION
TECHNOLOGY**

**COURSE TITLE: CLOUD COMPUTING AND SECURITY (SCIT/ CLOUD
COMPUTING AND EMERGING APPLICATIONS**

COURSE CODE: BIT 444E /BIT 422E:

DATE: 23/6/2026

TIME: 3-5PM

INSTRUCTIONS TO STUDENTS

- 1. ANSWER QUESTION ONE AND ANY OTHER TWO FROM THE CHOICES GIVEN.**
- 2. PHONES, SMART WATCHES, EAR PHONES OR ANY OTHER UNAUTHORIZED DIGITAL AND AI GADGETS AND APPLICATIONS ARE NOT ALLOWED IN THE EXAMINATION ROOM.**
- 3. ANSWER ALL QUESTIONS IN THE EXAM ANSWER BOOKLET PROVIDED.**
- 4. DO NOT WRITE ON THIS QUESTION PAPER.**
- 5. ALL KAFU EXAMINATION RULES AND REGULATIONS APPLY.**
- 6. DURATION OF EXAMINATION: TWO (2) HOURS**

KAFU observes ZERO tolerance to examination cheating.



QUESTION ONE (30 MARKS) – COMPULSORY

- a) Cloud computing is based on a paradigm shift with profound implications on computing ethics. Outline the three main elements of this shift. (3 marks)
- b) Explain THREE differences between Infrastructure as a Service (IaaS) and Platform as a Service (PaaS), giving ONE practical example for EACH model. (3 marks)
- c) Describe any TWO cloud deployment models and state ONE advantage and ONE limitation of EACH model. (6 marks)
- d) Explain any THREE risks associated with storing organizational data in the cloud environment, and state ONE control measure for EACH risk. (6 marks)
- e) IT Enterprise architecture recognizes four architecture domains. Using a diagram outline the layers and their functions. (6 marks)
- f) Cloud computing relies on virtualization technology; giving examples in each, differentiate the two basic types of Hypervisors. (6 marks)

QUESTION TWO (20 MARKS)

- a) Evaluate TWO roles played by data centers in supporting cloud computing services. (6 marks)
- b) Describe THREE ways in which cloud computing can reduce operational costs for organizations. (6 marks)
- c) Using a clear diagram, describe the process through which a user accesses cloud services from a client device. (8 marks)

QUESTION THREE (20 MARKS)

- a) Define cloud storage. (2 marks)
- b) Describe THREE categories of cloud storage solutions. (6 marks)
- c) Explain THREE techniques used to ensure data availability in cloud environments. (6 marks)
- d) Describe THREE methods used to authenticate users in cloud systems. (6 marks)

QUESTION FOUR (20 MARKS)



- a) Explain THREE security responsibilities of cloud service providers under the shared responsibility model. (6 marks)
- b) Evaluate how logging and monitoring enhance security in cloud environments. (6 marks)
- c) Describe any FOUR common threats that affect cloud computing environments. (8 marks)

QUESTION FIVE (20 MARKS)

- a) A company deployed its web application in the cloud but later experienced a security breach.
 - i. Explain how weak authentication mechanisms can expose cloud systems to unauthorized access. (4 marks)
 - ii. Evaluate how Multi-Factor Authentication (MFA) reduces the likelihood of such attacks. (4 marks)
- b) Explain TWO ways cloud computing supports disaster recovery planning in organizations. (6 marks)
- c) Describe TWO emerging applications of cloud computing and explain ONE benefit of EACH application. (6 marks)