



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY  
(MMUST)  
MAIN CAMPUS**

**UNIVERSITY REGULAR EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**FOURTH YEAR SECOND SEMESTER EXAMS**

**FOR THE DEGREE OF**

**BACHELOR OF INFORMATION SYSTEMS AND KNOWLEDGE MANAGEMENT**

**COURSE CODE: BIK 422**

**COURSE TITLE: EMERGING ISSUES IN ICT**

**DATE: 21<sup>ST</sup> APRIL, 2022**

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

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**INSTRUCTIONS: Please attempt QUESTION ONE and any other two questions**

**TIME: 2 Hours**

**MMUST observes ZERO tolerance to examination cheating**

**Paper Consists of 3 Printed Pages. Please Turn Over**

**1) Question one (30mks)**

- a) Using suitable examples, **COMPARE** the following technologies:
- i) Distributed computing and Cluster computing (3mks)
  - ii) Deep learning and Machine learning (3mks)
  - iii) Sensor networks and IoT (3mks)
  - iv) Structured and unstructured data (3mks)
- b) Mobile computing, AI, Data science and machine learning are some of the trending phenomena in ICT and are likely to define the future of ICT. Cite some of the applications where they converge and briefly discuss how you are likely to deploy them in an organization (8mks).
- c) Innovations in mobile and embedded computing have transforming the way information is transmitted and accessed and use network services.
- i) Outline some of the potential mobile technology applications you can recommend to an organization (4mks)
  - ii) Discuss how mobile technologies can support a company's business processes and decision-making. Give examples to illustrate your answer (6mks).

**Question two (20mks)**

- 2) Blockchain is emerging as a game changer in secure cyber activity.
- a) Distinguish between blockchain and bitcoin (4mks)
  - b) Briefly, describe the key features that are attracting new users to blockchain technology (8mks)
  - c) Supply chain, logistics and cryptocurrency are some of the major applications of the blockchain technology. Discuss how the technology works in any two of the mentioned applications (8mks)

**3) Question three (20mks)**

- Cloud computing has emerged as a solution to costly ICT resource mobilization for organizations that have challenges with funding.
- a) Briefly, describe how cloud computing works. Cite some of the cloud computing applications familiar to you (10mks)

- b) You've been hired as an ICT consultant. Your client is considering subscribing to Cloud computing Service as an alternative to setting up corporate data centers. Discuss how you will advise this client so that they can make an informed decision accordingly (10mks)

**4) Question four (20mks)**

Data Science is the area of study which involves extracting insights from vast amounts of data by the use of various scientific methods, algorithms, and processes.

- a) Distinguish between data scientist and data analyst (4mks)
- b) Briefly describe the essential skills that a data scientist should have (8mks)
- c) Describe any FIVE methods employed in data science (10mks)

**5) Question five (20mks)**

The Internet of Things is a network of physical objects – vehicles, machines, home appliances, and more – that use sensors and APIs to connect and exchange data over the Internet.

- a) Outline the essential infrastructure that the IoT technology requires to operate. Briefly explain the function/role of each component (6mks)
- b) Discuss some of the potential areas of application in Kenya where you could recommend IoT technologies (14mks)