



(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY SPECIAL/SUPPLEMENTARY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER EXAMS

FOR THE DEGREE OF

BACHELOR OF INFORMATION SYSTEMS AND KNOWLEDGE MANAGEMENT

COURSE CODE: BIK422/BIT410

COURSE TITLE: EMERGING ISSUES IN ICT

DATE: TUESDAY 02-08-2022

TIME: 11:00a.m-1;00p.m

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, **distinguish** the following technologies:
 - i) Classification and Clustering (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) Virtualization has grown in application as organizations look for opportunities to optimize the utilization of their ICT resources.
 - i) Briefly explain how virtualization works. Cite appropriate examples (4mks)
 - ii) Discuss the role of virtualization in cloud computing. 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 cryptocurrency (4mks)
 - b) Briefly, describe the challenges of this technology that keeps new users from trying 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 (8mks)
- b) Do a comparative analysis of cloud technologies vs an own data center (12mks)

4) 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) Do you think the application of IoT in Kenya is viable? Justify your answer and cite some of the potential areas you expect IoT technologies to be deployed and the possible benefits (14mks)

5) 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) What is the relationship between data science and Business Intelligence (2mks)
- b) Describe any FOUR methods employed in data science (6mks)
- c) The figure below illustrates the data science lifecycle. Describe what happens at each stage

