



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)
MAIN CAMPUS
UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR
DEGREE SEMESTER ONE MAIN EXAMINATION
FOR THE DEGREE
OF
BSc Information Technology**

COURSE CODE: BIT 410

COURSE TITLE: Emerging Issues in Computing
DATE: 14/12/2022 TIME: 2 Hours 8:00 AM – 10:00 AM

INSTRUCTIONS TO CANDIDATES

Question ONE is compulsory
Answer THREE (3) questions
TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating
This Paper Consists of 2 Printed Pages. Please Turn Over.



Question [Compulsory]

- a) By use of suitable examples distinguish between the following technological terms
 - i. Peer to Peer systems and Client server systems [3marks]
 - ii. Server virtualization and Network virtualisation [3 marks]
 - iii. Explain FOUR properties of virtualized machines [4marks]
- b) Describe FIVE characteristics of cloud computing using proper examples [5marks]
- c) Virtualisation is one of the technologies used by most organisations by taking advantage in optimizing its resources in ICT services.
 - i. Describe using examples how this technology works [4 marks]
 - ii. If MMUST were to adopt this technology in their computer labs , Explain the limitations of virtualisation as a technology for a given organization [6mks]
- d) Grid computing can mean different things to different individuals. The grand vision is often presented as an analogy to power grids where users get access to electricity through wall sockets with no care or consideration for where or how the electricity is actually generated. Grid computing represents a distributed computing approach that attempts to achieve high computational performance , Describe briefly using examples the various ways on how this approach is achieved [5marks]

Question Two

- a) Cloud computing applications have developed by leveraging platforms and frameworks. Various types of services are provided from the bare metal infrastructure to customizable applications serving specific purposes
 - i. Distinguish between cloud computing and cluster computing [10 marks]
 - ii. Using suitable examples , Discuss cloud computing platforms and technologies [10 marks]

Question Three

- a) Cluster and grid computing seem to be almost similar, there exists a lot of differences between two either in the performance, operation, and construction.
 - i. Briefly describe how the two technologies work , site relevant examples [8 marks]
 - ii. Explain the pros of cluster computing as a technology that makes it more important [6 marks]
- b) Using suitable examples describe the distinction of the following terms as emerging technologies. [6 marks]
 - i. Machine Learning and Artificial Intelligent
 - ii. Smart factory and Big data
 - iii. Cyber physical systems and Ecosystem

Question Four

- a) MMUSTA SYSTEMS is an upstart business that is supposed to adopt e-Commerce technologies to attract many home users but has limited capital to fund its ICT infrastructure. A mentor with an interest suggested they try IoT. As an IT expert you have been tasked to support this cause and ensure they implement the technology. Advise the Firm giving a critical overview of IoT and how they can take advantage of the technology.[10marks]
- b) Discuss the benefits of such technology to the users citing relevant examples [5marks]
- c) What is the Fourth Industrial Revolution? Explain FOUR distinct industrial revolutions that the world either has experienced or continues to experience today. [5 marks]
 - First to fourth industrial - award marks for full explanation

Question Five

- a) Using your knowledge , Give a comparative analysis of bitcoins VS cryptocurrency as technologies [12marks]
- b) Describe how block chain as a technology works site any known examples [4marks]
- c) Distinguish between Sensor networks and Mobile technologies [4marks]