

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0274: EMERGING TECHNOLOGIES IN COMPUTER SCIENCE

STREAMS: DIP. COMPSCI Y2S2

TIME: 2 HOURS

DAY/DATE: THURSDAY 13/04/2023

8.30 A.M. –10.30 A.M.

SECTION A (Answer ALL questions in this section)

QUESTION ONE [30 MARKS]

a. Define the following terms:

- i. Vulnerability (2 marks)
- ii. Attack (2 marks)
- iii. Threat (2 marks)

b. Differentiate between cyber security and information security. (4 marks)

c. Explain the following key concepts of blockchain for business:

- i. Shared ledger (2 marks)
- ii. Permissions (2 marks)
- iii. Consensus (2 marks)
- iv. Smart contract (2 marks)

d. Deployment models define the type of access to the cloud. State and explain **THREE** deployment models. (6 marks)

e. IOT has applications across all industries, state and explain the common uses of IOT in **THREE** different areas. (6 marks)

SECTION B (Answer any TWO questions)

QUESTION TWO (20 Marks)

- a. State and explain FOUR different areas where block chain is being applied. (8 marks)
- b. Explain THREE shortcomings of current transaction systems as compared to use of block chain technology. (6 marks)
- c. State and explain THREE primary vulnerabilities that can plague a network. (6 marks)

QUESTION THREE (20 Marks)

- a. State and explain any FOUR cyber safety that businesses and individuals could put in place to guard against cyber threats. (4 marks)
- b. State and explain any FOUR common types of cyber threats. (8 marks)
- c. Explain THREE risks that may be faced by adoption of the Artificial Intelligence in our country. (6 marks)
- d. Differentiate between asymmetric and symmetric encryption. (2 marks)

QUESTION FOUR (20 Marks)

- a. Explain what virtual reality is. (2 marks)
- b. Explain THREE disadvantages that may be experienced through the use of the Internet of Things (IOT) technologies. (6 marks)
- c. You are working for a cloud computing service provider and have been sent to explain to a client why they should adopt cloud computing. Discuss THREE main areas in which the client will experience the gains of cloud computing technology. (6 Marks)
- d. State and explain THREE types of hackers. (6 marks)

QUESTION FIVE (20 Marks)

- a. State and explain any FOUR application areas of virtual reality. (8 marks)
 - b. Explain what big data is and give a brief explanation on how it works. (6 marks)
 - c. State and explain THREE types of cyber security. (6 marks)
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