

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0274: EMERGING TECHNOLOGIES IN COMPUTER SCIENCE

STREAMS: DIP. COMP SCI Y2S2

TIME: 2 HOURS

DAY/DATE: MONDAY 27/09/2021

8.30 A.M. – 10.30 A.M.

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, No reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.
- Marks are awarded for clear and concise answers.

QUESTION ONE (30 Marks)

- Explain the term data as used in IOT? (2 marks)
- Define the following terms in IOT: (4 marks)
 - Zigbee
 - Z-Wave
- List **FOUR** most commonly used sensors types in IOT. (4 marks)
- Explain the meaning of the term Emerging Technology. (2 marks)
- Define the following terms:
 - Cloud computing (2 marks)
 - Computer vision (2 marks)
 - Deep learning (2 marks)
 - Internet of Things (2 marks)
 - Cryptography (2 marks)

- f) State any FOUR elements of cybersecurity. (4 marks)
- g) Explain why block chain is a trusted approach. (4 marks)

SECTION B (Answer any TWO questions)

QUESTION TWO (20 Marks)

- a) Discuss each of the following FOUR major cloud computing challenges (8 Marks)
 - i. Data Protection
 - ii. Data Recovery and Availability
 - iii. Management Capabilities
 - iv. Regulatory and Compliance Restrictions
- b) Explain what is encryption and explain its role in block chain. (6 marks)
- c) Explain the difference between Data Mining and Data Warehousing. (4 marks)
- d) Explain the security benefits of using cloud computing. (2 marks)

QUESTION THREE (20 Marks)

- a) Discuss the framework of four common communication models used by IoT devices. (8 Marks)
- b) State and explain THREE benefits of cloud services. (6 marks)
- c) State and explain the THREE different types of Block Chains. (6 marks)

QUESTION FOUR (20 Marks)

- a) Differentiate between Virtual Reality and Augmented reality. (4 marks)
- b) Explain how virtual Reality works. (4 marks)
- c) State and explain the FOUR most common IOT applications. (8 marks)
- d) Differentiate between an attack and a threat in cybersecurity. (4 marks)

QUESTION FIVE (20 Marks)

- a) Define the term artificial intelligence and explain any FOUR applications of artificial intelligence in the digital commerce. (6 marks)
- b) State and explain any FOUR cybersecurity attacks. (8 marks)

- c) Explain how you as a network administrator in Chuka University, you can protect data in transit and also data in rest. (4 marks)
 - d) Explain the advantages of data mining. (2 marks)
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