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)

a) Explain the term data as used in IOT?   (2 marks)

b) Define the following terms in IOT: (4 marks)

    i.   Zigbee

    ii.   Z-Wave

c) List FOUR most commonly used sensors types in IOT.   (4 marks)

d) Explain the meaning of the term Emerging Technology.   (2 marks)

e) Define the following terms:

    i.   Cloud computing   (2 marks)

    ii.   Computer vision   (2 marks)

    iii.   Deep learning   (2 marks)

    iv.   Internet of Things   (2 marks)

    v.   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)

…………………………………………………………………………………………