

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD  
OF CERTIFICATE IN COMPUTER SCIENCE

COSC 00171: COMPUTER NETWORKS AND INTERNET

STREAMS: BSC (COMP. SCI)

TIME: 2 HOURS

DAY/DATE: THURSDAY 11/4/2019

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.

**SECTION A (Answer ALL questions in this section)**

**QUESTION ONE (30 Marks)**

- a. Explain the following terms. (10 marks)
- TCP
  - IP
  - UDP
  - Computer network
  - Network Protocol.
- b. State and explain THREE technologies available to connect a computer to the internet (6 marks)
- c. With the aid of a diagram, explain the process of packet switching. (6 marks)
- d. While stating what they stand for, explain the difference between LAN, MAN and WAN computer networks. (6 marks)
- What's the difference Between an Intranet and the Internet? (2 marks)

**SECTION B (ANSWER ANY TWO QUESTIONS)**

**QUESTION TWO (20 MARKS)**

- a.) Using a diagram, explain the client/server model. (4 marks)
- b.) Discuss the layers of the Internet Protocol Stack (10 marks)
- c.) Briefly explain four advantages of the fiber optic cable (4 marks)
- d.) List TWO advantages of computer networks (2 marks)

**QUESTION THREE (20 MARKS)**

- a. Explain the characteristics of a peer-to-peer network (5 marks)
- b. Explain the role of the following devices in a network. (12 marks)
  - i. Switch
  - ii. Hub
  - iii. Router
  - iv. Bridge
- c. List THREE needs of security in a computer network (3 marks)

**QUESTION FOUR (20 MARKS)**

- a. List any FOUR **main** uses of the Internet. (4 marks)
- b. With the aid of diagrams, explain each of the following network topologies (6 marks)
  - i. Mesh Topology
  - ii. Bus Topology
  - iii. Star Topology
- c. With the aid of a diagram, explain the role of a firewall in a computer network (4 marks)
- d. State and explain THREE types of attacks that can occur in a computer network (6 marks)

**QUESTION FIVE (20 MARKS)**

- a. Describe the layers of the Open Systems Interconnection (OSI) Model (14 marks)
- b. What is IP addressing? How is classified? How is subnet addressing is performed (6 marks)

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