CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

CHUKA AND EMBU CAMPUSES

FIRST YEAR EXAMINATION FOR THE AWARD OF CERTIFICATE IN COMPUTER SCIENCE

COSC 00171: NETWORKS AND INTERNET

STREAMS: CERT. COMP SCI.   **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 05/12/2018   **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. Define the following terms: (10 Marks)
  i. Computer network
  ii. Data Transfer Rate
  iii. File Server
  iv. Network Protocol
  v. Web Server
b. State and explain THREE transmission modes in a computer network.   (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)
e. Distinguish between Internet Backbone and Internet Service Provider   (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.) List THREE types of unbounded transmission media. (4 Marks)
    d.) List TWO advantages of computer networks (2 Marks)

QUESTION THREE (20 Marks)

    a. Using diagrams, discuss the TWO propagation modes of fiber optic cable. (6 Marks)
    b. Explain the role of the following devices in a network. (12 Marks)
        i. Switch
        ii. Hub
        iii. Router
        iv. Bridge
    c. List TWO needs of security in a computer network (2 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. Apart from firewall, discuss THREE types of security in a computer network (6 Marks)