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University Examinations 2023/2024

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE CERTIFICATE IN
INFORMATION TECHNOLOGY

CIT 1110: NETWORKING ESSENTIALS

DATE: APRIL 2024   **TIME: 1¹/2 HOURS**

INSTRUCTIONS:
1. Answer Question ONE, and any other TWO

QUESTION ONE (30 MARKS)

1. Define the following terms as used and applied in the networking and networking essentials.

                                                                    (10 marks)

    i.   Network   (2 marks)

    ii.   A topology   (2 marks)

    iii.   A backbone   (2 marks)

    iv.   Transmission Media   (2 marks)

    v.   Node   (2 marks)

    vi.   Link   (2 marks)

2. Differentiate between the following terms: (6mks)

    i.   A path and a circuits

    ii.   Routing and packetizing

    iii.   Extranet and Intranets

3. Illustrate four of the characteristics of Network Operating Systems   (2mks)

4. Systems are best when the security detail is observed, you have just completed installing a

    network and interconnected with the internet. Elaborate how you as a networking officer you

would ensure that there is good security system in the backbone of the newly installed network. (5mks)

5. What are the risks a network faces from the internet today? (4mks)

6. Differentiate between the following terms: (4mks)
    i.   Synchronous vs Asynchronous TDM.
    ii.   Packet switching and Circuit Switching

7. Elaborate the advantages of networking a school environment uses an example of Meru University of Science and Technology Town Campus scenario (3 mks)

QUESTION TWO [15 MARKS]

1. There are several ways we employ in classifying the networks, briefly describe the classification according to Network Geography (6 mks)

2. Draw as a means of description showing various topologies on the same supply brief explanation of how each works (6 mks)

3. Describe the following and show the practical application (3mks)
    i.   4G
    ii.   5G
    iii. Bluetooth

QUESTION THREE [15 MARKS]

1. i. Define a communication channel (2 mks)

    ii. Explain the various communication channels. Show illustration using the specific images or simple drawings. (6 mks)

2.
    a. Describe the term multiplexing(2mks)
    b. What are the full names of the following short forms (2 mks)
        i.   MUX
        ii.   DEMUX

c. Discuss how the above are met in networking   (3mks)

QUESTION FOUR [15 MARKS]

1. You are required to network a cyber-shop. Differentiate between the networking devices and internetworking devices you are going to use, giving examples where necessary.   (4mks)
2. a. Describe a routing table   (2mks)

   b. Explain the difference between static routing and Dynamic routing   (4mks)
3. a. Describe networking architecture   (1mk)

   b. Elaborate the different standards defined by the IEEE based on collision detection and token passing networks.   (4mks)