THE CO-OPERATIVE UNIVERSITY OF KENYA

END OF SEMESTER EXAMINATION APRIL -2023

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE
(YR III SEM II)

UNIT CODE: BCIT 2153

UNIT TITLE: NETWORK DESIGN AND MANAGEMENT

DATE: THURSDAY, 27TH APRIL, 2023

TIME: 2:00 PM – 4:00 PM

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INSTRUCTIONS:
- **Answer question ONE (compulsory) and any other TWO questions**

QUESTION ONE
(a) Define the following terms:
  i.   Protocol
  ii. Network
  iii. Physical Topology
  iv. Logical Topology

[4 Marks]

(b) Differentiate between TCP/IP and OSI protocols and give the benefits of each.

[8 Marks]

(c) Describe the biggest limitation of bus topology.

[4 Marks]

(d) Describe the process of gathering user requirements for a small network.

[5 Marks]

(e) Why is it important to consider future expansion when planning for a network?

[4 Marks]

(f) Briefly describe the five network classes.

[5 Marks]

QUESTION TWO
(a) You have been appointed to negotiate a contract with a vendor to install a network in your company. Describe three things you will consider when arriving at your price.

[8 Marks]

(b) Explain why it is important for organizations to sign service level agreements (SLAs) with vendors.

[4 Marks]

(c) A packet sniffer, also called a packet analyzer, is a software application or piece of hardware that can intercept and log data as traffic passes over a network. Explain four purposes you can use a packet sniffer for.

[8 Marks]

QUESTION THREE

(a) The definition of a disaster that a system administrator should keep in mind is any unplanned event that disrupts the normal operation of the organization. In this context, discuss four different factors that can trigger a disaster.

[10 Marks]

(b) User accounts are the method by which an individual is identified and authenticated to the system. Discuss in detail the three main user accounts components in the context of an Electronic Learning Management System with over 5 thousand users.

[10 Marks]

QUESTION FOUR

(a) Give five (5) reasons why it is necessary for an organization to have a network security policy.

[10 Marks]

(b) User accounts are the method by which an individual is identified and authenticated to the system. Citing examples, describe three (3) different components of a user account.

[10 Marks]

QUESTION FIVE

(a) Describe five (5) network administration tasks categories as per ISO.

[10 Marks]

(b) The university as contacted you as a network administrator. Describe the issues you consider when developing a security plan for the university.

[10 Marks]