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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2019/2020 ACADEMIC YEAR
FIRST YEAR FOURTH SEMESTER, END OF SEMESTER EXAMINATIONS
FOR THE DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
DIT 1010: DATA COMMUNICATION AND NETWORKING

Date: 14th April 2022

Time: 11.30am-1.30pm

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION 1 COMPULSORY (30 MARKS)

- a) Define the following terms
 - i. Modulation (2marks)
 - ii. Data Communication (2marks)
 - iii. Intranet (2 marks)
- b) Networking projects in business firms are being given priority because of the way they are impacting productivity in general. Demonstrate the various ways by which computer networks are aiding business development. (6 marks)
- c) Explain any three of the LAN topologies, using diagrams whenever possible. (6 marks)
- d) Describe the following internetworking hardware's found at Kiriri University of Science and Technology (KWUST). (4 marks)
 - i. Router
 - ii. Switch
 - iii. Firewall
 - iv. Ethernet or NIC Card
- e) Discuss three IP addressing methods commonly used in networking (6 marks)
- f) State two advantages of using Fibre Optics cables (2 marks)

QUESTION TWO (20 MARKS)

- a) Differentiate between Data Terminal Equipment (DTE) and Data Circuit Terminating Equipment (DCE) Communications Hardware (2 marks)
- b) By use of a well labeled diagram describe three types of transmission mode (6 marks)
- c) List characteristics that distinguish LANs from other kinds of networks (4 marks)

- d) You are installing a small network for an insurance agency. There will be only five stations on the network. Cost is an issue, and the company would prefer not to dedicate individual's time to maintaining a network. However, the agency is also concerned about keeping its data safe, and the users and the users are not sophisticated computer users. In what ways is a peer –to- peer network appropriate to this company? In what ways is inappropriate? (8 marks)

QUESTION THREE (20 MARKS)

- a) Describe three main types of error detection techniques (6 marks)
- b) Explain the token passing mechanism in token ring. (4 marks)
- c) The main objective of networking is to connect all the devices so that resources and information can be shared efficiently. Traditionally, three methods of switching have been important: Describe these three methods (6 marks)
- d) A means of controlling access to the transmission medium in a LAN is known as medium access control (MAC). Explain how the CSMA/CD technique is used to gain the control of transmission (4 marks)

QUESTION FOUR 20 MARKS)

- a) Outline the difference between Serial and Parallel data communication (4 marks)
- b) Discuss three modes of multiplexing (6 marks)
- c) Expound five components of data communication at Kiriri University of Science and Technology (KWUST). (10 marks)

QUESTION FIVE (20 MARKS)

Everyone in a company X has a computer. For employees to share information, they either do that verbally or copy the information to flash disks and swap the disks. When clients call customer care for information about their accounts, they are usually kept on the line for long as their information is being sought for in several computers. This is badly affecting the company's productivity. You have been requested to help in designing and implementing solutions to their problems.

- a) Identify the technical term used to refer to the sharing of information through swapping memory cards and flash disks (2 marks)
- b) Just like computer hardware, a network is not complete without network enabled system software. Explain three roles of network operating system in a network. (6 marks)
- c) Describe four factors commonly evaluated when choosing the type of transmission medium for network. (8 marks)
- d) The viable solutions to this company's problems can be setting up a network. Highlight four ways on how this network will be secured from intruders (4 marks)