****

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2012/2013

**SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

# BIT 2204: NETWORK SYSTEMS ADMINISTRATION

**DATE: AUGUST, 2012**  **TIME: 2 HOURS**

**INSTRUCTIONS: Answer Question ONE and Any Other TWO Questions.**

**Question One (30 marks)**

a) Give a brief description of the following networking terminologies. [8 marks]

 i. Physical topology

 ii. Network protocol

 iii. Computer network

 iv. Hub

b) Give at least six challenges of a non-networked system. [6 marks]

c) i. Many homes and small offices have a wireless local area network (WLAN). Give six reasons why they prefer wireless than cabled. [6 marks]

 ii. What should the owners of these wirelesses do to protect the WLAN from eaves droppers? Give three points. [6 marks]

d) What does Metropolitan Area Network mean? [4 marks]

**Question Two (20 marks)**

a) Internet is a world wide computer network linking thousands of computers. Describe six services that are offered by the internet. [6 marks]

b) How has the business world been transformed by the installation of the fibre optic cable?

 [6 marks]

c) Name and explain the functions of the four major parts of the fibre optic cable.

 [8 marks]

**Question Three (20 marks)**

a) A business uses a number of different networks:

 i. What is a LAN? [1 mark]

 ii. How does a LAN differ from a WAN? [3 marks]

 iii. Define intranet, and give one example of a purpose for which it might be used.

 [2 marks]

 iv. How does the use of extranet differ from internet. [4 marks]

b) Unauthorized access to business network may cause problems.

 i. Give three software methods of preventing unauthorized access to a network.

 [6 marks]

 ii. What steps should be taken to minimize the risk of data being stolen by ‘a trusted’ employee. [4 marks]

**Question Four (20 marks)**

Communication between two points is only possible via a communication channel.

a) Distinguish between a digital and analogue channel. [4 marks]

b) Differentiate between broadband and bandwidth. [4 marks]

c) Explain the advantages of using the following media:

 i. STP (shielded twisted pair) [3 marks]

 ii. Coaxial cable [3 marks]

d) Connectivity requires an agreed communication protocol. Explain what protocol mean in this context. [3 marks]

e) In data communication what is the function of a modem? [3 marks]

**Question Five (20 marks)**

A modern packet switching network must have a route at each node except for terminal nodes. Several communication channels may be connected to each node. A packet take any feasible route through the network.

a) Explain the meaning of; [6 marks]

 i. Node

 ii. Router

 iii. Communication channel

b) Give two advantages of packet switching network. [4 marks]

c) For each of the following network topologies:

* + - BUS
		- Star

 i. Draw and label a diagram that clearly describes the topology. [6 marks]

 ii. State two advantages and two disadvantages of each of the two topologies.

 [4 marks]