



KENYA METHODIST UNIVERSITY

END OF 1ST TRIMESTER 2010 EXAMINATIONS

FACULTY : **COMPUTING AND INFORMATICS**
DEPARTMENT : **COMPUTER INFORMATION SYSTEMS**
UNIT CODE : **CISY 434**
UNIT TITLE : **TELECOMMUNICATION NETWORKS II**
TIME : **2 HOURS**

Instructions:

- Answer question 1 and any other 2 questions.

Question 1 (30 marks)

- a) Define the following terms;
- Data communication
 - Telecommunication system
 - Voice communication (6 mks)
- b) In data and telephone networks, there are various devices that form the sub network system that facilitate the transfer of data and messages between end user devices. State three devices of your choice and describe their operation. (6 mks)
- c) Define multiplexing and state the four main multiplexing techniques. (6 mks)
- d) Discuss the application of circuit switching in telecommunication system. (3 mks)
- e) Briefly describe the ISDN implementation of local loop. (3 mks)
- f) State and briefly describe the three technological layers of a backbone network. (6 mks)

Question 2 (20 marks)

- a) Describe the term "3G network". (2 mks)
- b) Differentiate between a local loop and inter-toll trunk, indicating their point of application in a telephone system. (6 mks)
- c) Describe the terms;
- POTS
 - PSTN
 - Modem
 - WAP (8 mks)
- d) Discuss the operation of the store-and-forward switching, with reference to switched telecommunication networks. (4 mks)

Question 3 (20 marks)

- a) Analyze the relevance of OSI model in the design, development and application of telecommunication systems. (14 mks)
- b) State and briefly describe two 2nd generation mobile telephone technologies. (4 mks)
- c) Give two advantages of using a wireless local loop. (2 mks)

Question 4 (20 marks)

- a) Differentiate between packet switched network and dedicated circuit networks. (4 mks)
- b) What is a virtual LAN? (2 mks)
- c) Briefly describe the following wireless LAN technologies;
 - i) Bluetooth
 - ii) WiFi
 - iii) IEEE 802.11a (6 mks)
- d) Analyze how the application of telecommunication technologies in business at each of the following levels can help boost the firm's competitive advantage. (6 mks)
 - i) Within the organization
 - ii) National
 - iii) International
- e) Outline two aspects of logical network design. (2 mks)