

KABARAK



UNIVERSITY

EXAMINATIONS

2008/2009 ACADEMIC YEAR

**FOR THE DEGREE OF BACHELOR OF EDUCATION
SCIENCE**

COURSE CODE: COMP 222

**COURSE TITLE: TELECOMMUNICATIONS AND
COMPUTERS**

STREAM: SESSION V

DAY: FRIDAY

TIME: 2.00-4.00 P.M.

DATE: 28/11/2008

INSTRUCTIONS:

- 1. This question paper has FIVE questions**
- 2. Answer question ONE and any other TWO questions**

PLEASE TURN OVER

QUESTION ONE (30 MARKS) COMPULSORY

- (a) Explain the meaning of the following terms
- i. Modem
 - ii. Firewall
 - iii. Multicast
 - iv. Hybrid topology
 - v. Protocol stack (10mks)

- (b) Distinguish between the following
- i. Simplex and duplex
 - ii. Private branch exchange and public switched telephone networks
 - iii. Star-of-stars and star-bus topologies (6mks)

(c) State six disadvantages of a network (3mks)

(d) Differentiate between message switching and packet switching modes (3mks)

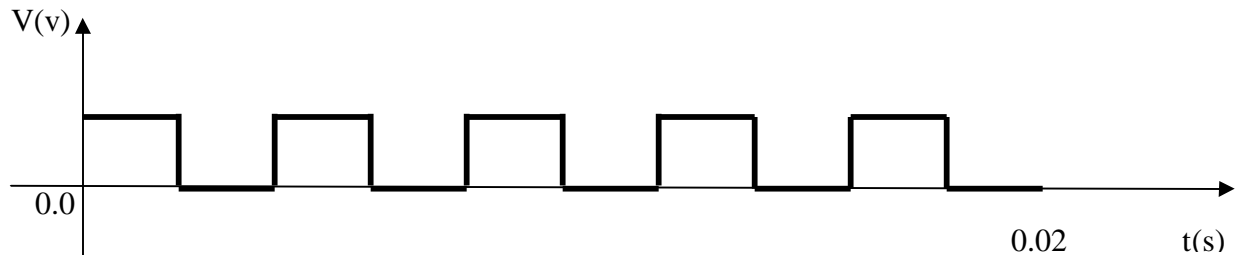
(e) Describe how a folder is shared in a network (3mks)

(f) The line below is a message sent over a network:
A network or communications network is a system of interconnected computers, telephones lines or other communication devices to communicate and share application.
If the message takes 2 milliseconds to be transmitted over the network, determine the transfer rate in bps (4mks)

QUESTION TWO (20 MARKS) ELECTIVE

- (a) What is meant by the term signal? (1mks)
- (b) Why should data be converted to a signal before transmission over a medium? (2mks)
- (c) Distinguish between digital and analog signal giving an example of each (3mks)
- (d) Explain the terms baud, frequency, amplitude and through put (8mks)

(e) The figure below shows a number of bits transmitted in 0.02 seconds



- i. Frequency of the transmission (3mks)
- ii. The baud rate (3mks)

QUESTION THREE (20 MARKS) ELECTIVE

- (a) Define bandwidth (3mks)
- (b) What is multiplexing? Describe how multiplexing is achieved (6mks)
- (c) Differentiate between synchronous and asynchronous data transmission modes (5mks)
- (d) Discuss point to point and broadcast transmissions (6mks)

QUESTION FOUR (20 MARKS) ELECTIVE

- (a) What do you understand by the term network topology? (1mk)
- (b) Why does a gateway belong to all the seven layers of OSI? Explain the function of a gateway. (2mks)
- (c) Identify and describe **three** main types of network topologies (9mks)
- (d) Explain four factors to consider when choosing a network topology? (8mks)

QUESTION FIVE (20 MARKS) ELECTIVE

- (a) What is OSI? (2mks)
- (b) Write UDP in full and explain its function (3mks)
- (c) One of the advantages of a computer network is efficiency. Explain three ways in which a of computer network is efficient (6mks)
- (d) Describe the three types of signal flaws (9mks)