KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF EDUCATION SCIENCE

COURSE CODE: COMP 312

COURSE TITLE: COMPUTER NETWORKS

STREAM: SESSION VI

DAY: THURSDAY

TIME: 9.00 – 11.00 A.M.

DATE: 13/08/2009

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 following terms

i. Thin Client
ii. BNC
iii. Cipher
iv. Token (8mks)

(b) Distinguish between
i. CSMA/CD and CSMA/CA
ii. Data and Signal (4mks)

(c) Differentiate between thick coaxial cable and thin coaxial cable (5mks)

(d) What are the conditions that a gateway must meet in order to perform the functions of interpreting network systems? (3mks)

(e) A 56KB document is sent over Ethernet network. How many possible minimum and maximum number of frames can be obtained from this document when broken down into pachets by the Ethernet network? (2mks)

(f) Determine the number of networks an host per network for a class 'C' type network (3mks)

(g) State the encoding rules and limitations for Non Return to Zero (NRZ) and Manchester encoding schemes (5mks)

QUESTION TWO (20 MARKS) ELECTIVE

(a) Compare and contrast Switches and Routers (5mks)

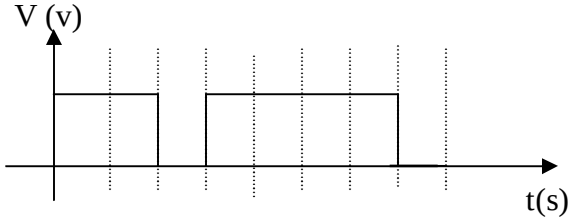
(b) Every token ring frame contains control information and follows the same structure. Describe a token ring frame. (10mks)

(c) With the aid of a diagram, explain how CSMA/CD works (5mks)

QUESTION THREE (20 MARKS) ELECTIVE

(a) Compare and contrast Differential Manchester and Non Return to Zero Inverted (NRZ-I) encoding schemes wave formats as a means of converting data to signals to be transmitted over a channel (5mks)

(b) Determine the input value for the following NRZ-I encoding scheme (4mks)



(c) Plot a Manchester differential graph for the input value 1101011100 (5mks)

(d) A 10dB noisy medium transmits signals between 23 MHz and 33 MHz frequencies. Determine the maximum data capacity the channel can transmit. (6mks)

QUESTION FOUR (20 MARKS) ELECTIVE

(a) Differentiate between data link layer and transport layer of the OSI reference model (5mks)

(b) Explain the distinction between Network Id and Host Id. (4mks)

(c) What is the Class, Network Id, Host Id and subnet of the following IP addresses?

i. 178.16.178.16

ii. 123.2.3.10 (5mks)

(d) Convert the decimal numbers 178, 123 and 16 to binary numbers (6mks)

QUESTION FIVE (20 MARKS) ELECTIVE

(a) Explain the meaning of the term ping as used in networking (3mks)

(b) When setting up a peer-to-peer connection, one has to configure the IP addresses, work group name and the computer's name. Describe the procedure taken when in IP address configuration (6mks)

(c) List and explains on the steps that you should follow when sharing a folder across a network (7mks)

(d) Explain the functions of crossover and straight cables (4mks)