KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS

2010/2011 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF BUSINESS MANAGEMENT & INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS

COURSE CODE: BMIT 217

COURSE TITLE: COMPUTER NETWORKS AND COMMUNICATIONS TECHNOLOGY

STREAM: Y2S1

DAY: TUESDAY

TIME: 2.00 -5.00 P.M

DATE: 14/12/2010

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

PLEASE TURNOVER

QUESTION ONE (40 MARKS) COMPULSORY

(a) Explain the meaning of following terms
- i.   Baud
- ii.   Base band
- iii.   BootROM
- iv.   Block Checksum
- v.   Encryption   **(10mks)**

(b) Distinguish between
- i.   Physical and logical network topology
- ii.   Half-duplex and full duplex
- iii.   ISO reference model and network protocols   **(6mks)**

(c) For an administrative password to be strong and secure it should be of certain characteristics. State and explain **five** characteristics of a good password

(5mks)

(d) Explain **four** disadvantages of using a twisted pair cable   **(4mks)**

(e) An Ethernet network is used to transmit a 7.2KB document. Determine the maximum and minimum possible number of frames transmitted.   **(5mks)**

(f) For each of the these four network issues; ISA, FTP, ISDN, and ICMP
- i.   Give their names in full   **(2mks)**
- ii.   Explain their functionality in networking   **(4mks)**
- iii.   State the OSI reference model they operate at   **(2mks)**

QUESTION TWO (30 MARKS) ELECTIVE

(a) Distinguish between baud rate and throughput   **(2mks)**

(b) Explain the effect of using each of the following mode of transmission in networks
- i.   packet switching
- ii.   multicast
- iii.   asynchronous
- iv.   broadband   **(8mks)**

(c) Describe peer-to-peer and client-server networks   **(6mks)**

(d) Suppose you are invited as a network expert to talk to new students about networks. In your speech, outline **five** advantages and **five** disadvantages of computer networks

(10mks)

(e) In modulating signals, a MODEM codes binary bit 1 as normal wave and binary bit 0 as compressions. Draw a digital wave graph for the following analog wave **(4mks)**
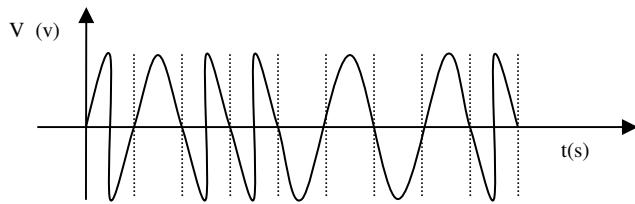
QUESTION THREE (30 MARKS) ELECTIVE

(a) Distinguish between the following terms
  i. DNS and Default gateway
  ii. UDP and TCP protocols **(4mks)**

(b) A computer network student set up a network of three computers and assigned the following IP addresses:

> Computer 1: 01111111.00000000.00000000.00000001
> Computer 2: 11000000.01000000.11000000.11111111
> Computer 3: 11000000.01000000.11000000.01000000

  i. Convert the above binary numbers 00000001_2, 01000000_2, 01111111_2, 11000000_2 and 11111111_2 to decimal numbers **(10mks)**

  ii. Write down the computers' IP addresses in decimal dotted numbers **(4mks)**

  iii. Identify the class, Network Id, Host Id and subnet for each of the IP addresses. **(4mks)**

  iv. The student tested and found that the computers could not communicate. Explain **four** IP address considerations that the student must have not considered when assigning the IP addresses **(8mks)**

QUESTION FOUR (30 MARKS) ELECTIVE

   (a) Explain the meaning of the following terms
            i.   Routing table
           ii.   Forwarding table
         iii.   Transceiver   **(6mks)**

   (b) Compare and contrast between repeaters and bridges   **(6mks)**

   (c) Give the conditions that a gateway must meet in order for it to perform network translation   **(3mks)**

   (d) Twisted pair cables are the mostly widely used cables in LANs.
            i.   Describe how twisted pair cables are designed to reduce EMIs, crosstalk and attenuation.   **(2mks)**
           ii.   Highlight four benefits and four drawbacks of using twisted pair cable   **(8mks)**
         iii.   The table below shows the different categories of TPs and corresponding applications. Fill in the blank spaces   **(5mks)**

Categories (CAT)	Capacity (mbps)	Application
CAT 1	20kbps	Telephone for voice only
CAT 2		
CAT 3		
CAT 4		
CAT 5		
CAT 5e		
CAT 6	>100	LAN for ATM

QUESTION FIVE (30 MARKS) ELECTIVE

   (a) What is meant by the following terms
            i.   CSMA/CD
           ii.   Token
         iii.   IP Spoofing   **(6mks)**

   (b) Network security threats calls for appropriate measures. Give at least two examples of threats for the following measures
            i.   Firewalls
           ii.   Proxy Server
         iii.   Log on restrictions
         iv.   Passwords
         v.   Encryption   **(5mks)**

   (c) Briefly, describe Ethernet historical background   **(5mks)**

   (d) Differentiate between 10Base2 and 100Base5 Ethernet standards   **(5mks)**

   (e) Discuss star, ring and bus topologies giving at least one advantage and one disadvantage of each.   **(9mks)**