

KABARAK



UNIVERSITY

UNIVERSITY EXAMINATIONS

2010/2011 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF COMPUTER SCIENCE

COURSE CODE: COMP 312

COURSE TITLE: COMPUTER NETWORKS

STREAM: Y3S1

DAY: TUESDAY

TIME: 2.00 – 4.00 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 (30 MARKS) COMPULSORY

- (a) Explain the meaning of following term
- i. BootROM
 - ii. Block Checksum
 - iii. Encryption (6mks)
- (b) Distinguish between
- i. Physical and logical network topology
 - ii. ISO reference model and network protocols
 - iii. GSM and CDMA (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) An Ethernet network is used to transmit a 7.2KB document. Determine the maximum and minimum possible number of frames that can be transmitted. (5mks)
- (e) For each of the these four network issues; ISA, FTP, MAC 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 (20 MARKS) ELECTIVE

- (a) Explain the meaning of the terms
- i. Thin Client
 - ii. Domain controllers (4mks)
- (b) Describe peer-to-peer and client-server networks (6mks)
- (c) 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)

QUESTION THREE (20 MARKS) ELECTIVE

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 numbers (2mks)
- 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. Give **four** IP address considerations that the student must have not considered when assigning the IP addresses (4mks)

QUESTION FOUR (20 MARKS) ELECTIVE

- (a) Explain the meaning of the following terms
 - i. Forwarding table
 - ii. Transceiver **(4mks)**

- (b) Compare and contrast between repeaters and bridges **(5mks)**

- (c) 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. List four benefits and four drawbacks of using twisted pair cable **(4mks)**
 - 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 (20 MARKS) ELECTIVE

- (a) What is meant by the following terms
 - i. CSMA/CD
 - ii. IP Spoofing **(4mks)**

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

- (d) Discuss star and bus topologies giving at least one advantage and one disadvantage of each. **(6mks)**