NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
DECEMBER EXAMINATIONS 2004

SUBJECT: Computer Data Communications
CODE: SCS 2101

INSTRUCTIONS TO CANDIDATES

The question paper consists of seven (7) questions

Answer any 5 questions

QUESTION ONE

a) With the aid of diagrams, list and explain the various types of signals.   [6]

b) Briefly explain what is meant by transmission impairments.   [2]

c) List and explain any four transmission impairments.   [12]

QUESTION TWO

a) Explain the characteristics and state the advantages using the of the following transmission media in a network.

    i. Twisted pair cable   [4]

    ii. Coaxial cable   [4]

    iii. Fiber-optic cable   [4]

    iv. Microwave.   [4]

b) What is the difference between conducted and radiated media?   [4]

QUESTION THREE

a) List and explain the topologies used in Local Area Networks (LANs).   [10]

b) What is the difference between a peer-to-peer network and a client-sever network?

[4]

c) Write briefly on any two LAN protocols.   [6]

QUESTION FOUR

a) Explain the functions of the following communication equipment:

    i)   Front-End Processor   [4]

    ii) Controller   [4]

    iii) Concentrator   [4]

    iv) Protocol Converter   [4]

b) What are Synchronous and Asynchronous Transmission modes?   [4]

QUESTION FIVE

a)   With the Aid of diagrams, explain how clock synchronisation can be achieved using

    i)   Bipolar encoding   [4]
    ii)   Phase (Manchester) encoding   [4]

b)   What purpose does the following serve in data communication networks?

    i) Repeater   [2]
    ii) Bridge   [2]
    iii) Router   [2]
    iv) Gateway   [2]

c)   Briefly explain the concept of **Modulation** and why it is important in data transmission.   [4]

QUESTION SIX

a)   Give a brief description of the following; Draw a sketch diagram to illustrate each.

    i) Circuit Switching   [5]
    ii) Message Switching   [5]
    iii) Packet Switching   [5]

b)   Describe the Routing Techniques that are used to move data through a network.

    [5]

QUESTION SEVEN

a)   Name four objectives of network management.   [4]

b)   You are an IT Manager for a growing company, which plans to run distributed data networks. As part of your duties you are supposed to give recommendations towards purchasing of equipment to be used in setting up the planned network. What recommendations would you give?   [10]

c)   Describe briefly two types of encryption   [6]

END OF QUESTION PAPER
GOOD LUCK