NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRONIC ENGINEERING
HIGH SPEED NETWORKS
EEE 5233

Examination Paper

March 2025

This examination paper consists of 3 pages

Time Allowed: 3 hours
Total Marks: 100
Examiner's Name: S.Nhema

INSTRUCTIONS

1. Answer **ANY 4 QUESTIONS**
2. Start the answer for each question on a fresh page

MARK ALLOCATION

QUESTION	MARKS
1.	**25**
2.	**25**
3.	**25**
4.	**25**
5.	**25**
TOTAL	**100**

QUESTION 1

a. What are the 2 advantages of serial transmission over parallel transmission when used over long distances. [2]
b. Name and explain 7 circuits of a computer bus. [7]
c. List and explain 4 serial adapter interrupts. [8]
d. With the aid of a diagram briefly explain the generic model. [8]

QUESTION 2

a. What is an ATM. [3]
b. Briefly explain X25 Protocol specification. [5]
c. With the aid of diagrams what is the difference between synchronous and asynchronous transmission. [6]
d. Describe any 5 Error detection codes and control. [5]
e. State the interfaces that are found in the Data Terminal Equipment (DTE) and Data Terminating Equipment circuits (DCE). [6]

QUESTION 3

a. State 5 principles that were applied to arrive at the 7 OSI layers. [5]
b. What is the purpose of the OSI reference model and draw its arrangement. [10]
c. Draw a table showing How the TCP/IP Model and associated DoD protocols relate to OSI. [5]
d. Describe what is an Integrated Services Digital Network (ISDN) and (BISDN). [5]

QUESTION 4

a. Draw and explain the IP datagram header format. Give the size and function of each field. [20]

b. Draw an example of ISDN system with PBX for use in large businesses. [5]

QUESTION 5

a. What is The IP protocol (version 4). [2]

b. Describe the functions and applications of the ATM header format for the subnet interface and for the internal subnet. [8]

c. Draw the cell relay architecture and explain the layers . [10]

d. List 5 basic purposes of layered protocols. [5]