NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRONIC ENGINEERING

EEE 3122 COMMUNICATIONS ENGINEERING 1

Examination Paper

December 2024

This examination paper consists of 2 pages

Time Allowed: 3 hours
Total Marks: 100 marks
Special Requirements: N/A
Examiners Name: Engineer Magripa Nleya

INSTRUCTIONS

1. Answer any five (5) questions only
2. Each question carries 20 marks
3. Draw all diagrams clearly
4. All Formulas should be written clearly

MARK ALLOCATION

QUESTION	MARKS
1.	20
2.	20
3.	20
4.	20
5.	20
TOTAL	100

QUESTION 1

Explain the Synchronous Digital Hierarchy (SDH) frames structures with the use of the diagrams [20].

QUESTION 2

Draw the ATM network components and explain functions of each block. [20]

QUESTION 3

A. Indicate how the total AM power is calculated? [6]

B. Explain Vestigial Sideband (VSB) Modulation with the aid of the diagram [14]

QUESTION 4

A. Draw the diagram of the packet switched system. [2]

B. Explain the operation of cellular systems. [18]

QUESTION 5

A. How the Telecommunications signals classified objectively? [10]

B. Explain how the First two levels of FDM hierarchy is generated as a supergroup signal. [10]

QUESTION 6

Explain the concept of Frequency modulation in full details with the aid of diagrams [20]

QUESTION 7

A. Explain Amplitude Shift Keying (ASK) Modulation with the aid of diagrams. [16]

B. What is Multilevel PSK? [4]

QUESTION 8

Identify and explain the random noise sources in Communications systems. [20]

END OF THE EXAMINATION PAPER