NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi – Abuja

FACULTY OF COMPUTING

DEPARTMENT OF COMPUTER SCIENCE

2024_2 EXAMINATION

Course Code: **CIT423**
Course Title: **Computer Networks and Communication**
Credit: **3 units**
Time allowed: **2½ Hours**
Instruction: Answer Question **ONE (1)** and any other **THREE (3)** Questions

1a. Describe the roles of gateways in internetworking **(7Marks)**
b. Mention the functions of a MODEM in communication network **(5Marks)**
c. Explain the workings of the normal state and command state of a MODEM **(4marks)**
d. State what the following MODEM indicator light signifies **(4Marks)**
(i) AA – ON (ii) RD – Flashes (iii) SD – Flashes (iv) AA-OFF
e. What bit rate does the following MODEM recommendations specify **(5Marks)**
(i) V.22 (ii) V.22 bis (iii) V.32 (iv) V.32 bis (v) V.34

2a. With a diagram only, illustrate the ATM Protocol Model **(4Marks)**
b. Highlight the functions of the Physical layer in the ATM protocol model **(5Marks)**
c. Describe the services of the ATM Adaptation Layer **(6Marks)**

3a. Transmission media can be guided or unguided. Example with two examples each **(6Marks)**
b. Identify the modes of data transmission **(4Marks)**
c. Differentiate between simplex and half-duplex mode of data transmission **(5Marks)**

4a. Discuss the functions of point-to-point and point-to-multipoint ATM connections **(6Marks)**
b. List five (5) metrics used by EGRP to determine best route to forward packets in a network **(5Marks)**
c. Identify four (4) application areas of ATM technology **(4Marks)**

5a. Briefly explain the two approaches to transport data in packet switching **(6Marks)**
b. Describe the basic operations of an ATM Switch **(6Marks)**
c. State the difference between permanent virtual connection and switched virtual connection **(3Marks)**

6a. State three (3) disadvantages of the Mesh topology **(3Marks)**
b. List the protocol data unit (PDU) of the first four layers of the OSI model **(4Marks)**
c. Explain the difference between the LAN and MAN **(8Marks)**