



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2023_1 POP EXAMINATION

COURSE CODE: CIT854

COURSE TITLE: Network Programming and Design

CREDIT: 3 Units

TIME ALLOWED: 3 Hours

INSTRUCTION: Answer Question 1 and any other three (3) questions

1a) Using illustrative diagrams, briefly explain the three different modes of data transmission. **(7½ marks)**

b). What are the importance of the following in a network? **(6 marks)**

(i) Nodes (ii) Links (iii) Modem

c) Write short notes on network topology **(4½ marks)**

d) Discuss Twisted pair cable. **(5 marks)**

e) State any two benefits of subnetting in networks **(2 marks)**

2a) Using well-labelled diagrams, represent the following: **(2 marks each. Total = 6 marks)**

(i) Star topology (ii) bus topology (iii) ring topology.

b) What is meant by IP Address? **(3 marks)**

c) List the four classes of network and their corresponding first 4 bits of IP Address. **(6 marks)**

3a) Explain fully any four guidelines for network addressing. **(8 marks)**

b) The number 127 in class A is reserved for internal loopback functions. Describe the workings of the loopback address. **(4 marks)**

c) State three tasks performed by the internet control message protocol **(3 marks)**

4a) What are the guidelines for switch port allocation **(3 marks)**

b) State the audit trail activities that are monitored in a network **(3 marks)**

c) Identify four advantages of using bridges in a network? **(4 marks)**

d) Write short notes on "Network Management" and state its functional areas. **(5 marks)**

5a) State the four key elements of Network Management System. **(4 marks)**

b) Outline the logical steps to follow in order to investigate and isolate Network Problems? **(7 marks)**

c) Enumerate four key network design variables. **(4 marks)**

6a) Write short notes on the following network troubleshooting tools.

(i) Time-Domain Reflectometers (TDRs) **(3 marks)**

(ii) MAU Analyser **(3 marks)**

b) With the aid of illustrative diagram, describe a simple client-server network. **(6 marks)**

c) State three ways to get the options that affect a socket. **(3 marks)**