



NATIONAL OPEN UNIVERSITY OF NIGERIA
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-
ABUJA**

FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE

2025_2 EXAMINATIONS_

COURSE CODE : CIT 854

COURSE TITLE : Network and Programming Design

CREDIT UNIT : 3

TIME ALLOWED : 2½ HOURS

INSTRUCTION : Answer Four Questions in ALL. Question 1 is compulsory

1. a) Explain the following with respect to DNS
i). PTR ii) MX iii) CNAME **[6 marks]**
b) Give highlight on the following network classes:
i) Class A, ii) Class B, ii) Class C, ii) Class D, iii) Class E **[5 marks]**
c) Using diagrams only, compare between the internet model and OSI reference model **[4marks]**
d) What are the necessary guides to consider when planning a cabling system **[4marks]**
e) Briefly explain the internal structure of the coaxial cable **[4 marks]**
f) Describe the mode of data transmission you know **[2 marks]**
2. a) Give detailed explanation of **SO_BROADCAST** Socket Option **[5 marks]**
b) Enumerate the advantages and disadvantages of bus topology **[5marks]**
c) Give a suitable description of a Node? Explain how a node can be connected to a Computer Network **(5Marks)**
3. a) State the Three conditions that are handled **str_cli** Function **[6 marks]**
b) Using formula only, explain Shannon's law **[5 marks]**
c) What is the specific function associated with the **SO_DEBUG** socket option? **[4 marks]**
4. a) State 3 points about signal handling on a Posix-compliant system. **[6 marks]**
b) Write short notes on Virtual Local Area Network. **[5 marks]**
c) State the practical guidelines for deciding between routing and bridging in a network environment? **[4 marks]**
5. a) Highlight the responsibilities of the IETF (Internet Engineering Task Force) in the field of networking? **[6 marks]**
b) State the two queues use for kernel maintains with respect to listening socket **[4 marks]**
c) Describe the advantages and disadvantages of Star Topology **[5 marks]**
6. a) List the layers of OSI Model that you know. **[3½marks]**
b) Enumerate the indicators of router malfunctions **[5 marks]**
c) State the functions of the following **[6½ marks]**
 - i) bus
 - ii) data Links
 - iii) Parallel links
 - iv) Serial links
 - v) Network Shell
 - vi) CSMA/CD