



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 Programming and Design

CREDIT: 3 Units

TIME ALLOWED: 3 Hours

INSTRUCTION: Answer Question 1 and any other THREE (3) Questions

- 1a) Describe four criteria for network addressing (**6 marks**)
b) Enumerate three reasons why UDP would be preferable to TCP giving examples of applications that are better suited for UDP in each case. (**4½ marks**)
c) Describe the various mode of data transmission. (**4½ marks**)
d) Explain the key elements of network management system (**6 marks**)
e) Write short notes on Coaxial cable (**4 marks**)
- 2a) The disposition of a signal is set by calling the sigaction function, explain the three choices for the disposition. (**9 marks**)
b) Discuss the Fibre Optic Cable(**6 marks**)
- 3a) Describe the three generic socket options. (**7½ marks**)
b) Write short notes on Twisted Pair Cable (**3 marks**)
c) Give any three (3) key network design variables and state the question(s) being answered by each. (**4½ marks**)
- 4a) With well-labelled diagrams only, present the graphical representations of analogue and digital signal (**4 marks**)
b) Write short notes on the following network devices:
i) Repeater (**6 marks**)
ii) Switches (**5 marks**)
- 5a) Discuss the operations of a router (**5 marks**)
b) State the major differences between Bridges and Routers. (**3 marks**)
c) Outline the steps to investigate network problems. (**7 marks**)
- 6a) Discuss the types of backbone that can be used to interconnect heterogeneous LANs. (**10 marks**)
b) Complete the following table of Internet applications and their underlying transport protocols: (**5 marks**)

S/N	Application	Application-layer Protocol	Underlying Transport Protocol
i.	Electronic mail		
ii.	Remote terminal		
iii.	Web		
iv.	File transfer		
v.	Remote file server		
vi.	Streaming multimedia		
vii.	Internet Telephony		
viii.	Network management		
ix.	Routing Protocol		
x.	Name Translation		

