



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**  
**FACULTY OF SCIENCES**  
**COMPUTER SCIENCE DEPARTMENT**  
**2020\_2 EXAMINATIONS ...**

**COURSE CODE: CIT854:**

**COURSE TITLE: NETWORK PROGRAMMING AND DESIGN**

**Credit: 3 units**

**TIME ALLOWED: 2½ Hours**

**INSTRUCTION: Answer Question 1 and any other FOUR (4) Questions**

1a) Briefly Name and describe three key element of a network management system **(6 marks)**

1b) Explain the following generic socket options.

i). SO\_BROADCAST Socket Option **(2 marks)**

ii). SO\_DEBUG Socket Option **(2 marks)**

iii). SO\_DONTROUTE Socket Option **(2 marks)**

1c) State any four fields of the IP packet and their respective functions. **(8 marks)**

1d). List the four symptoms that may be associated with the Network cabling. **(2 marks)**

2a) What is Network Interface Card (NIC). **(2 marks)**

2b) Write a short note on the following

i). Fibre Optic Cable **(2 marks)**

ii). Twisted Pair Cable **(2 marks)**

iii). Coaxial Cable **(2 marks)**

2c) State four consideration in planning a cabling system **(4 marks)**

3a) Describe three routing algorithm attributes. **(6 marks)**

3b) Discuss the importance of switches in a network **(6 marks)**

4a) Discuss five criteria for network addressing **(10 marks)**

4b) Describe switching? **(2marks)**

5a) State four disadvantages of bus topology. **(2 marks)**

5b) Enumerate four tools that are commonly used in network troubleshooting **(6 marks)**

5c). Highlight the steps to investigate network problems. **(4 marks)**

6a) Complete the following table of Internet applications and their underlying transport protocols:

S/N	Application	Application-layer Protocol	Underlying Transport
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			<b>Protocol</b>
1.	Electronic mail		
2.	Remote terminal		
3.	Web		
4.	File transfer		
5.	Remote file server		
6.	Streaming multimedia		
7.	Internet Telephony		
8.	Network management		
9.	Routing Protocol		
10	Name Translation		

*(10 marks)*

**6b)** What is Internet Protocol?

*(2 marks)*