



NATIONAL OPEN UNIVERSITY OF NIGERIA
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-
ABUJA**
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE
2024_2 EXAMINATION

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) Give detailed description the *uname* Function **[3 marks]**
 - b) What advantages do smaller networks possess over large time-shared ones?
[11marks]
 - c) How does the Ethernet LAN switch improve bandwidth? **[2 marks]**
 - d) Show the relationship between cabling types and network topologies **[2 marks]**
 - e) State the main limitation(s) of VLAN **7 marks**
2. a) Explain the code snippet below:

```
# include <sys / socket. h>
int getsockopt(int sockfd, int level, int op/name, void
*optval, sock len_t *opt/en);
int setsockopt (m nt sockfd, int level, i nt op/name, cont
void *optva/
soc k I e nt_t opt/en);
```

[6 marks]
 - b) Using a diagram, show the operation of the carrier sense protocol **[4 marks]**
 - c) Identify multiple factors to consider when addressing cable-related problems **[2.5 marks]**
 - d) Give the full meaning of the following i) NOS ii) VLAN iii) TCP/IP **[2.5 marks]**
3.
 - a) Write a C program to represent the *str_cli* function in the client processing loop. **[3 marks]**
 - b) Briefly explain the advantage of a layering concept **[4 marks]**
 - c) Elaborate on all the software elements that constitute a network **[4 marks]**
 - d) Describe the activities of the Audit trail that are monitored: **4 marks**
4.
 - a) What is the MAU Analyzer used for? Outline the procedure for troubleshooting a Network **[5 marks]**
 - b) Discuss the role of a designer in a network. **[4 marks]**
 - c) Describe a Signal. List two methods through which software interrupts can be dispatched **[6 marks]**
5.
 - a) Describe the listen-to function's actions on TCP servers **[5 marks]**
 - b) What are the prerequisites for utilizing the Emergency Repair Process in an NT server for system recovery? **[4Marks]**

- c) Enumerate the three conditions that need to be addressed when handling the "str_cli" function ***/6 marks/***
- 6. a) Enumerate the various commonly utilized tools for network problem troubleshooting ***/6 marks/***
 - b) Write a short note on Internet Engineering Task Force ***/5 marks/***
 - b) Outline several practical principles to consider when choosing between routing and bridging in a network setting ***/4 marks/***