



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2021_1 EXAMINATIONS

COURSE CODE: CIT852

COURSE TITLE: DATA COMMUNICATION AND COMPUTER NETWORKS

CREDIT: 3 UNITS

TIME ALLOWED: 2½ HOURS

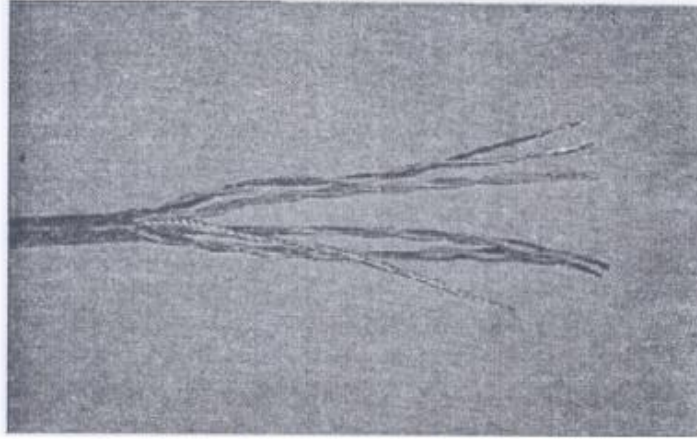
INSTRUCTIONS: ANSWER QUESTION 1 AND ANY OTHER FOUR (4) QUESTIONS

Q1.

- (a) What is a computer network? (3 marks)
- (b) Mention two (2) characteristics of Local Area Networks (LAN) (2 marks)
- (c) With the aid of a well labelled diagram illustrate the seven layers of the OSI Model. (10 marks)
- (d) Enumerate three (3) differences between the OSI and TCP/IP Model (3 marks)
- (e) Differentiate between Synchronous and Asynchronous transmission. (4 marks)

Q2.

- (a) Explain the two (2) major protocols used in transport support layer. (4 marks)
- (b) Identify the type of cable in the diagram below. (2 marks)



- (c) Differentiate between Hub, Switch and Router. (6 marks)

Q3.

- (a) What is a Digital Signature? (3 marks)
- (b) State three (3) benefits of using Digital Signatures? (3 marks)
- (c) Describe there (3) security features of the Secure Socket Layer (SSL) (6 marks)

Q4.

- (a) State two (2) important reasons for network security. (2 marks)
- (b) List three (3) security requirements for any application-to-application communication. (3 marks)
- (c) State two (3) types of Cryptography Techniques. (3 marks)
- (d) State the difference between Static IP and Dynamic IP. (4 marks)

Q5.

- (a) Differentiate between data Communication and Data Transmission. (4 marks)
- (b) What is meant by 127.0.0.1 and local host? (2 marks)
- (c) Define Data Encapsulation. (2 marks)
- (d) Explain the process of fragmentation (2 marks)
- (e) Mention two (2) ways by which Instant Messaging applications may be secure. (2 marks)

Q6.

- (a) What are the four (4) different types of data representation? (4 marks)
- (b) What is the difference between a Firewall and Antivirus? (4 marks)
- (c) Differentiate between a baud rate and a bit rate. (2 marks)
- (d) Describe the process of data encapsulation and De-encapsulation. (2 marks)