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**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 OS1 Model. (10 marks)
(d) Enumerate three (3) differences between the ODI 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)

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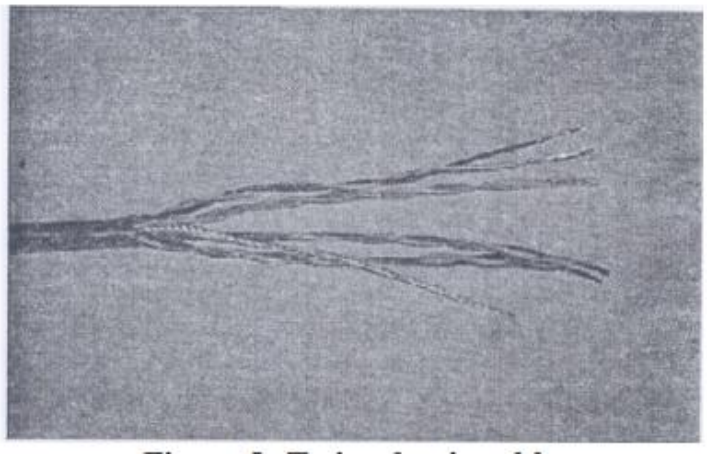

(c) Differentiate between Hub, Switch and Router. (6 marks)

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)

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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)