



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: CIT303

COURSE TITLE: Principles of Communication Technology

CREDIT: 3 Units

TIME: 2½ Hours

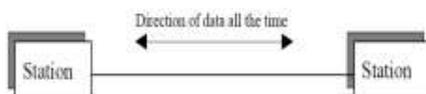
INSTRUCTION: Answer Question ONE (1) and any other THREE (3) Questions

Question 1

1(a) Outline any two (2) software and hardware used for dial up connections. **(2marks)**

1(b) List and briefly explain the five (5) different forms in which information can be displayed. **(10marks)**

1(c) Explain the mechanism behind the diagram below.



(3marks)

1(d) Define the Session Layer of OSI model **(3marks)**

1(e) Explain the two subcategories of Packet Switched Network you know. **(3marks)**

1f(i) Mention two (2) different types of technologies in which Circuit Switching can be used. **(1mark)**

1f(ii) Define the term decibel and state its characteristics. **(3marks)**

Question 2

2(a) IPV4 addresses are divided into five (5) different address classes. Name the classes with their IP address range. **(5marks)**

2b(i) What do you understand by signal impairment and list any two (2) causes of it. **(2marks)**

2b(ii) What is a link in computer network? **(2marks)**

2(c) Explain in detail the features of physical layer of the OSI reference model. **(6marks)**

Question 3

3(a) Explain the following different modes of communication between devices. **(6marks)**

3(b) Differentiate between ring network topology and star network topology using only an illustrated diagram. **(4marks)**

3(c) Mention any four examples of hardware equipment or network element that can operate in physical layer of OSI model. **(2marks)**

3(d) What is BIOS? **(3marks)**

Question 4

4(a)i List three types of network you know. **(3 Marks)**

4(a)ii. Explain in detail the three types of network you listed in (i) above **(6 marks)**

4(b) List the types of connectors used for fiber optic cables and state their uses. **(6marks)**

Question 5

5a(i) Define Digital Signal Processing. **(2marks)**

5a(ii) List at least six (6) examples of common analog systems we use in our everyday life. **(3marks)**

5(b) Tabulate the major difference between Presentation layer and Application layer of OSI model. **(8marks)**

5(c) Draw out the difference between Frequency domain and Time domain in signal analysis. **(2marks)**

Question 6

6(a) State the characteristics of Cipher Block Chaining (CBC) mode. **(6marks)**

6(b) What is the difference between mono-alphabetic cipher and polyalphabetic cipher of symmetric key. **(4marks)**

6(c) Write the full meaning of these Signaling System 7 (SS7) protocols that are on Application layer of OSI model. **(2marks)**

6(d) State three (3) uses of Rivest Shamir Adleman (RSA) algorithm. **(3marks)**