



**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**UNIVERSITY VILLAGE, 91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA**  
**FACULTY OF COMPUTING**  
**2024\_2 EXAMINATION**

**COURSE CODE: CIT 303**

**COURSE TITLE: Principles of Communication Technology**

**CREDIT: 3 Units**

**TIME: 2 ½ Hours**

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

- 1(a)** State one difference between fiber optic cable and twisted-Pair/Coaxial cable. **(2marks)**
- 1(b)** List and explain briefly the four (4) network security services that are related to the message exchange when users are using network. **(6marks)**
- 1(c)** State and explain differences between impulse signal and unit step function as types of signals. **(6marks)**
- 1(d)** Mention two (2) examples of devices that operate in the following layers of TCP/IP model  
(i) Data link layer (ii) Physical layer (iii) Network layer **(3marks)**
- 1(e)** Discuss the relationship between the physical layer of the OSI model and the TCP/IP model. **(5marks)**
- 1(f)(i)** List out the three (3) different mode, communication between two devices can be. **(1½ marks)**
- 1(f)(ii)** Mention one function of the following protocols ratified by ITU standard.  
(i) H.320 (ii) H.323 (iii) H.324 **(1½ marks)**
- 2(a)** Discuss your understanding of Network topology and its types. **(4marks)**
- 2(b)** List and explain the four (4) characteristics of an effective data communication system. **(6marks)**
- 2(c)** Differentiate between substitution cipher and transposition cipher. **(5marks)**
- 3(a)** List and explain the three (3) importance criteria a network must meet. **(6marks)**
- 3(b)** Discuss briefly, a network layer and transport layer **(4marks)**
- 3(c)** List out any four (4) different forms information can come in communication/computer system. **(2marks)**
- 3(d)** With two (2) examples each, name two types of protocol in Network layer of TCP/IP models.

**(3marks)**

**4a(i)** Explain the three (3) ways of propagation in wireless communication in which data can be transmitted. **(3marks)**

**4a(ii)** Define Guided media network communication. **(2marks)**

**4 (b)** What do you understand by peer-to-peer connection? **(2marks)**

**4(c)** Explain the two types of Network connection you know. **(4marks)**

**4(d)** Mention at least 8 examples of protocol in data-link layer **(4marks)**

**5(a)** Write short notes on the following terms  
(a) Autocorrelation (b) Filtering (c) Quantization (d) Sampling **(6marks)**

**5(b)** List at least eight (8) examples of protocols that occurred in Session layer of OSI model with their full meaning **(4marks)**

**5(c)** What is a server **(2marks)**

**5d(i)** Why do standard organizations create forum? **(2marks)**

**5d(ii)** What is the meaning of ASCII **(1mark)**

**6(a)** Write a short note on the following terms:  
(a) Protocol (b) Semantic (c) Timing (d) Standard **(6marks)**

**6(b)** With a well labeled block diagram only, state the security services related to the message. **(4marks)**

**6(c)** In one sentence, describe presentation layer with respect to the Application layer. **(2marks)**

**6(d)** The header of IP packet format consists of 12 fields and 1 optional field, Name the 12 fields **(3marks)**