

### National Open University of Nigeria, University Village Plot 91 Cadastral Zone,

### Nnamdi Azikiwe Express Way, Jabi, Abuja

**Faculty of Sciences**

**CIT 303 PRINCIPLES OF COMMUNICATION TECHNOLOGY – (3 Credits)**

**Answer Question one (1) and four (4) other questions in 21/2 Hours.**

**Total of 70, Question 1 is 22 marks and others 12 marks each**

1(a)Explain Data Communication and outline and explain their features. (5 marks)

1(b)  [Describe an Encryption and Decryption?](https://interviewquestionsanswers.org/__What-is-Encryption) (3 marks)

1(c ) Outline and explain three Network criteria (3 marks)

1(d) Outline four (4) basic networking devices. (4 marks)

1(e) Differentiate between Symmetric-Key Cryptography and symmetric-Key Cryptography

4 marks)

1(f) List three broad groups of wireless transmission: radio

waves, microwaves, and infrared waves (3 marks)

2 (a). Describe with diagram the components of data communication (4 marks)

2(b) What is a protocol and list its key elements (4 marks)

2(b) List and explain different forms of information (4 marks)

3(a) Describe the following with diagrams :

1. Bus Topology
2. Tree Topology
3. Star Topology

(3 marks each)

3(b) Outline the three (3) types of keys in cryptograph (3 marks)

4(a).Write short notes on the following:

(i) Simplex

(ii) Half- Duplex

(iii) Full - Duplex

(3 marks each)

4(b) 4(b) List and explain two (2) types of connection ( 3 marks)

5.(a) What is OSI model ? (3 marks)

5(b) Outline five (5) types of topology (5 marks)

5 ( c) Explain Cryptography algorithms, Use the shift cipher with key = 12 to encrypt the message “HELLO.” (4 marks)

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6 (a) Distinguish between Analog Signal processing and Digital Signal processing (3 marks)

6 (b) Write short notes on the following

(i) LAN

(ii) WAN

(ii) Wireless

(3 marks each)