

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**

**FACULTY OF SCIENCES**

**DEPARTMENT OF COMPUTER SCIENCE**

**OCTOBER, 2019 EXAMINATIONS**

**COURSE CODE: CIT303**

**COURSE TITLE: PRINCIPLES OF COMMUNICATION TECHNOLOGY**

**CREDIT: 3 UNITS**

**TIME ALLOWED: 2½ HOURS**

**INSTRUCTION:ANSWER QUESTION ONE (1) AND ANY OTHER FOUR(4) QUESTIONS**

**Question 1**

1. Define the term ‘Data Communication’ **(2mks)**
2. Explain the following terms: A protocol and Network topology**(3mks)**
3. With proper Illustration, explain Ring topology **(3mks)**
4. Describe the concept of Physical Signalling Sub Layer **(3mks)**
5. Explain the term Laplace transform **(2mks)**
6. Describe Nyquist-Shannon sampling theorem **(3mks)**
7. Mention and explain briefly the various guided media you have studied**(6mks)**

**Question 2**

1. In a well-articulated numbering tabular format, summarise the OSI layers

**(7mks).**

1. Compare using major functionality between Data-link layer and Network layer **(5mks)**

**Question 3**

1. Using mathematical function, compare Laplace transform and Inverse Laplace transform**(4mks)**
2. Explain Fourier transformfunction **(2mks)**
3. With mathematical representation describe the difference between Fourier transform integral and Inverse Fourier transform **(4mks)**
4. Define the term convolution**(2mks)**

**Question 4**

1. Explain the term Modem**(2mks)**
2. With proper illustration, explain the Mesh topology **(3mks)**
3. Compare between a WAN and a MAN**(3mks)**
4. Mention and describe any two of networking software or dial-up connections**(4mks)**

**Question 5**

1. Give the fullmeaning of the following: NetBIOS, BIOS, NOS and NIC**(2mks)**
2. Explain the functions of the NOS **(5mks)**
3. Describe the word switches and list the 3 switching method **(5mks)**

**Question 6**

1. Explain the term Cryptography**(2mks)**
2. Differentiate between cipher and key **(4mks)**
3. Write down the CFB and enumerate 3 characteristics of CFB mode **(2 mks)**
4. With proper illustration, show security services related to the message or entity

**(4mks)**