NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI-ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2020_1 EXAMINATIONS

COURSE CODE: CIT 303
COURSE TITLE: PRINCIPLES OF COMMUNICATION TECHNOLOGY
CREDIT: 3 UNITS
TIME ALLOWED: 2½ HOURS
INSTRUCTIONS: ANSWER QUESTION ONE (1) AND ANY FOUR (4) OTHERS

QUESTION ONE (22MARKS) COMPULSORY

a. Discuss the effectiveness of data communication system with reference to delivery, accuracy, timeliness and jitter. *4marks*
b. Explain the concept of "performance and reliability" as basic criteria in a network communication system. *4marks*
c. Suppose a user X in Lagos want to make (point-to-point) phone call to user Y in the Company Office's in Abuja. Describe the procedures required to establish and make the call. *4marks*
d. Explain the key element of protocols in computer networks. *3marks*
e. Distinguish between Shift Cipher and Transposition Cipher. *3marks*
f. Given a key using a block of four characters as:
    Plaintext: 2 4 1 3
    Ciphertext: 1 2 3 4

Decrypt the message "XMEANTIAOTIN" using transposition cipher technique using transposition cipher technique. *4marks*

QUESTION TWO (12MARKS)

a. Use schematic diagrams to illustrate point – to – point and multipoint connections. *4marks*
b. Explain any 2 means in which the Media Access Control Sublayer determines where one frame of data ends and the next one begin. *4marks*
c. Explain any 2 basic functions of the Data Link Layer. *4marks*

QUESTION THREE (12MARKS)

a. List any five advantages of the TCP/IP Model. *4marks*
b. (i) State any 4 characteristics of IP *2marks*
   (ii) Explain the term "IP addressing" *2marks*
c. Distinguish between Analog and Digital Signals *4marks*.

QUESTION FOUR (12MARKS)

a. State the 3 categories of wireless transmission. *3marks*
b. Despite current achievement to handle voice and video services over the internet, service delivery is still a measure concern. What are some of the critical changes that must be put in place to change this narrative? *5marks*
c. In Time and space domain, what is the use of filtering. *4marks*

QUESTION FIVE (12MARKS)

a. Describe the OSI layer that is closet to end user. *6marks*
b. Explain any two implementations that can be done at the presentation layer. *6marks*

QUESTION SIX (12MARKS)

a. In Time and Space domain, what is the use of filtering. *4marks*
b. Explain any two types of filter characterization. *4marks*
c. Give any 4 advantages of optical fiber. *4marks*