ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER ENGINEERING

FIRST SEMESTER EXAMINATION, 2019/2020 ACADEMIC SESSION

COURSE TITLE: DATA COMMUNICATIONS AND NETWORKS

COURSE CODE: ECE 409/ECT 415

EXAMINATION DATE: FEBRUARY 2020

COURSE LECTURER: PROF A. O. OLUWATOPE

HOD's SIGNATURE

TIME ALLOWED: <u>3 HOURS</u>

INSTRUCTIONS:

1. ANSWER <u>FOUR QUESTIONS ONLY</u>, **QUESTION TWO IS COMPULSORY**.
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

QUESTION #1

a. Describe the OSI Model   [7 marks]
b. Describe the TCP/IP protocol suite   .   [5 marks]
c. Discuss the network criteria   [3 marks]

QUESTION #2

a. What is data communication?   [1 mark]
b. What are the components of a data communication?   [5 marks]
c. What are the different forms of information today?   [5marks]
d. Describe two data flow models available   [1 mark]
e. What are the factors for necessary to determine the effectiveness of a data
   communication system?   [3 marks]

QUESTION #3

   a. Describe three network topologies available   [3 marks]
   b. What are guided media?   [3 marks]
   c. What are unguided media?   [3 marks]
   d. Describe the propagation modes in optical fibre   [3 marks]
   e. Differentiate between radiowaves and microwaves   [3 marks]

QUESTION #4

   a) Describe the CSMA/CD strategy   [4 marks]
   b) Write short notes on the followings   [3 marks]
        (i.)   TDMA
        (ii.)   FDMA
        (iii.) CDMA
   c) Describe the services within the data link layer   [8 marks]

QUESTION 5

   a) Describe the sublayers of the data link layer   [4 marks]

   b) What are the three types of link addresses with the link layer protocol   [6 marks]

   c) Describe the Address Resolution Protocol, ARP, operations   [5marks]

QUESTION 6

a.) Describe the Address Resolution Protocol, ARP, packet structure   [2 marks]
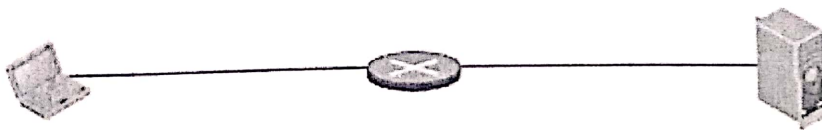

Figure 1

b.) Explain the reason why the router in figure 1 may not be needed   [4 marks]

c.) Discuss the process of error detection in block coding   [5 marks]

d) What are linear block codes?   [4 marks]