CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

CHUKA & THARAKA CAMPUSES

FIRST YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0160: DATA COMMUNICATION & COMPUTER NETWORKS

STREAMS: DIP COMP SCI Y1S1   **TIME: 2 HOURS**

DAY/DATE: TUESDAY 6/08/2019   **11.30 A.M - 1.30 P.M.**

INSTRUCTIONS:
- Answer all in question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.
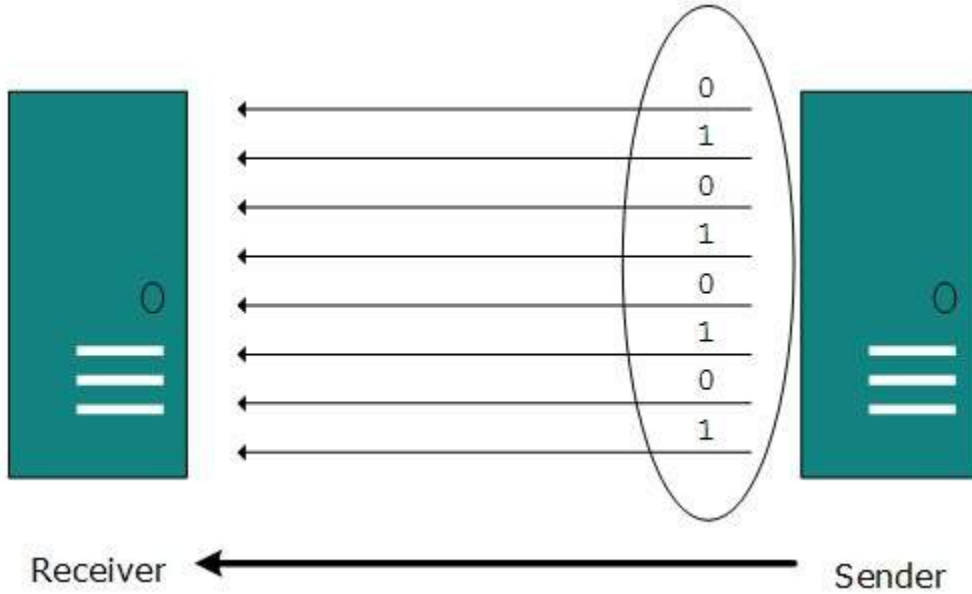
SECTION A: ANSWER ALL QUESTION IN THIS SECTION
QUESTION ONE (30 MARKS)

a. Define the following Terms in Data Communications   [6 Marks]
    i. Frequency
    ii. Signal
    iii. Channel

b. List Two Popular Block Encoding Types   [2 Marks]

c. List & EXPLAIN THREE famous types of communication protocols?   [6 Marks]

d. Why is the OSI model not considered to be a Network architecture   [2 Marks]

e. What is Error in Data Transmission?   [2 Marks]

f. As a network engineer, briefly EXPLAIN the difference between a Network Switch and a Network Router and an example of where you apply those   [4 Marks]

g. List 4 Common Network Topologies?   [4 Marks]

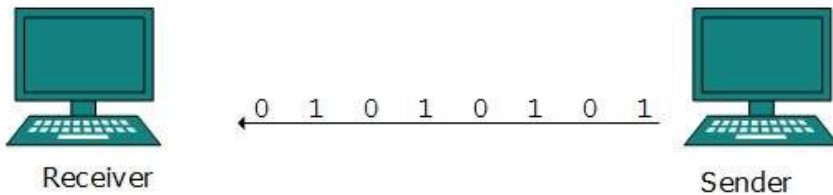h. What Is the Difference Between Bit Rate &Baud Rate   [4 Marks]

SECTION B (ANSWER ANY TWO QUESTIONS ONLY)
QUESTION TWO (20 MARKS)

a. Explain the Following Diagrams, Where Do They Apply   [6 Marks]
i.

ii.

b. Describe in DETAIL, the OSI Model in Network Architecture   [14 Marks]

QUESTION THREE (20 MARKS)
   a.   Suppose the original data is 1010 which is to be sent. Using Hamming code, calculate the
   value of redundant bits r, and total number of bits transmitted
NB: d represents total number of bits   [6 Marks]

   b.   List Two Advantages & Disadvantages Each of Circuit Switching   [4 Marks]

   c.   Discuss FOUR Data Encoding Techniques   [8 Marks]

d. From Your understanding of the Sampling Theorem,is there a difference between Sampling Rate and Nyquist Rate in signals? Explain [2 Marks]

QUESTION FOUR (20 MARKS)

a. As A Network Architect, What Factors Do You Consider When Choosing A Topology for A Client [10 Marks]

b. What Is ARPANET? Write Brief Notes Explaining Its History and Relationship to The Internet [10 Marks]

QUESTION FIVE (20 MARKS)

a. Discuss Standard Lan Technologies [10 Marks]

c. List and Explain Three Lan Transmission Methods: [6 Marks]

c. Advice on How You Can Create A Local Area Network? [4 Marks]

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