



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

**A. M. E. C. E. A**

P.O. Box 62157

00200 Nairobi - KENYA

Telephone: 891601-6

**MAIN EXAMINATION**

**MAY – JULY 2019 TRIMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE**

**SPECIAL / SUPPLEMENTARY EXAMINATION**

**CMT 300: DATA COMMUNICATION**

**Date: JULY 2019**

**Duration: 2 Hours**

**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

Q1.a) Outline and explain the FOUR fundamental characteristics that determine the effectiveness of a communication system. (8marks)

b) Explain what is Data communication ? (2 marks)

c) List and explain the FIVE major components of a Data communication System (10 marks)

d) Explain how the following modes of communication between two devices take place in communication systems:- (6 marks)

i) Simplex

ii) Half Duplex

iii) Full Duplex

e) Explain what is Distributed processing? (2marks)

f) Differentiate between Point-to point link and a Multipoint (2mark)

Q2. a) List and explain the THREE major network Criteria that a network must meet in order to perform well (6marks)

- b) With the help of a diagram explain what is Mesh Topology and give its advantages and disadvantages (8marks)
- c) Explain what the following network Categories are :- (6 marks)
- i) LAN
  - ii) MAN
  - iii) WAN
- Q3.a) Explain the major functions of the Physical layer (5marks)
- b) i) With the aid of a diagram explain what Ring Topology is (7 marks)
  - ii) Give its advantages and Disadvantages
- c) Explain what the following terminologies in Data communication are. (8 marks)
- i) Sine Wave
  - ii) Periodic Analogue Signals
  - iii) Peak Amplitude
  - iv) Period and Frequency
- Q4. a) List and explain the FIVE major components of a Data Communication System (10 marks)
- b) Explain the major services that are provided by the PPP (7 marks)
  - c) Explain what Channelization is in Data communication systems (3 marks)
- Q5.) a) Differentiate between Parallel Transmission and Serial Transmission, and give their advantages and Disadvantages. (6 marks)
- b) Explain what the following Terminologies in Data communication are:- (8 marks)
- i) Analogue –to-Analogue conversion
  - ii) Amplitude Modulation
  - iii) Frequency Modulation
  - iv) Phase Modulation
- c) Explain what is switching is and List THREE methods of switching (6 marks)

**\*END\***