MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

SECOND YEAR **FIRST** SEMESTER EXAMINATION FOR, DIPLOMA IN IINFOMRATION TECHNOLOGY

SIT 056 – FUNDAMENTALS OF COMPUTER NETWORKS

DURATION: 2 HOURS

DATE: 15/4/2019

TIME: 9-11 A.M.

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Define the following terms as used in data communication and computer networks. (6 marks)

    i.   Computer Network.

    ii.   Data communication.

    iii. Attenuation.

b) Discuss the two components of a wireless communication system. (4 marks)

c) In computer networking, network topologies can be classified under two main categories, one of which is logical topology. Explain any two types of logical topologies. (4 marks)

d) With aid of a diagram, describe how server-based network architecture works. (6 marks)

e) Mention any six functions of network operating system. (6 marks)

f) Describe the following network concepts and give an example of each. (4 marks)

    i.   Network server

    ii.   Network practical.

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) With the help of a diagram, describe any three types of physical topologies that can be implemented by Company XYZ to gain a competitive edge. (9 marks)

b) Explain the following two access methods as used in computer networks. (4 marks)

    i.   CSMA/CD

    ii.   CSMA/CA

c) Describe any three security requirements that must be met in network environment. (6 marks)

d) Define the concept Bound Transmission Media. (1 mark)

QUESTION THREE (20 MARKS)

a) Explain each of the following network infrastructure devices. (8 marks)

    i.   Switch

    ii.   Router

    iii. Bridge

    iv. Repeater

b) Networks are classified using different criteria. Describe any three types of networks that are defines based by Geography. (6 marks)

c) State any three advantages and three disadvantages of a peer-to-peer network category.

(6 marks)

QUESTION FOUR (20 MARKS)

a) OSI model which as established by International Standard Organization consist of seven layers. Explain the role played by each layer. (14 marks)

b) Describe the following modes of data communication and give an example of where they are applied. (6 marks)

    i. Half duplex Transmission

   ii. Full duplex Transmission.