



# SOUTH EASTERN KENYA UNIVERSITY

## UNIVERSITY EXAMINATIONS 2017/2018

### FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY & BACHELOR OF SCIENCE IN COMPUTER SCIENCE

#### SCI 207: COMPUTER NETWORK

**DATE: 11<sup>TH</sup> DECEMBER, 2017**

**TIME: 4.00 – 6.00 PM**

#### INSTRUCTIONS TO CANDIDATES

- **Section A(Compulsory)**
- **Answer ANY TWO questions from section B**

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#### Question One

- Define the terms as used in computer network.
  - Topology
  - Attenuation
  - Bandwidth

**(3 Marks)**
- Explain **three** characteristics of a network operating system. 

**(3 Marks)**
- Highlight **two** sources of error during transmission. 

**(2 Marks)**
- Highlight **two** protocols used at the application layer of OSI model ; 

**(2 Marks)**
- Specify **four** circumstances under which the unbounded media becomes a better choice than the bounded media. 

**(4 Marks)**
- Distinguish between the following:
  - Internal and external modem 

**(2 Marks)**
  - Digital and analog data 

**(2 Mark)**
- The management of Memtech Ltd has decided to establish a network connecting all computers in the offices. Explain **five** reasons to justify their decision. 

**(5 Marks)**
- Elaborate on the need for establishment and implementation of standards in computer networks. 

**(3 Marks)**
- Using diagrams illustrate the following:
  - Peer to peer network;
  - Client-server based networks. 

**(4 Marks)**

**SECTION B (40 marks)- Answer any Two Questions**

**Question Two**

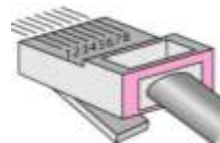
- a. Using a diagram explain one role for each of the seven layers of the OSI communication model. **(7 Marks)**
- b. Explain the role of the application layer in the DARPA model stating three protocol operating in it **(4 Marks)**
- c. Using diagrams explain three multipoint network topologies stating the advantage of each. **(6Marks)**
- d. Distinguish between PC operating system and network operating system. **(2 Marks)**

**Question Three**

- a. Describe three types of networks based on the geographical coverage. **(6 Marks)**
- b. Explain two threats to the following computer resources:
  - i. Hardware
  - ii. Software
  - iii. Files **(6 Marks)**
- c. Identify the following networking hardware stating their function:



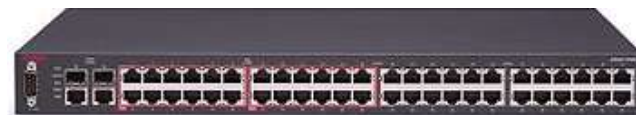
- i. **(2 Marks)**



- ii. **(2 Marks)**



- iii. **(2 Marks)**



- iv. **(2 Marks)**

#### Question Four

- a. Explain the following switching techniques:
  - i. Packet switching (3 Marks)
  - ii. Circuit switching (3 Marks)
- b. Describe the following transmission media stating one strength and weakness of each :
  - i. Twisted pair;
  - ii. Fiber optic (6 Marks)
- c. Kentech is a six month old company that is owned by three partners. Their business has picked up very fast and they have decided to set up a computer network to link 5 offices in a two storey building.

**Required:**

- i. Draw the network design for Kentech. (3 Marks)
- ii. Outline **five** factors to be considered in choosing which topology to be deploy (5Marks)