



**KIBABII UNIVERSITY COLLEGE**

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**UNIVERSITY EXAMINATION**

**1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER 2013/2014**

2013/2014 ACADEMIC YEAR

FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

**UNIVERSITY EXAMINATIONS**

**2014 /2015 ACADEMIC YEAR**

**COURSE CODE:** DIT 060

**COURSE TITLE:** DATA COMMUNICATION AND NETWORKS 1

**DATE:** 11<sup>TH</sup> AUGUST, 2014

**TIME:** 2.00 PM – 5.00 PM

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**INSTRUCTIONS**

- Answer Question ONE and ANY OTHER TWO.

### QUESTION ONE

- a) Define the following terms [4 marks]
- i. Data
  - ii. Information
  - iii. Network
  - iv. Data communication
- b) Discuss any six basic hardware components used in construction of a computer network. [9 marks]
- c) Discuss various transmission impairments and how they may affect the information carrying capacity of a communication link. [4 marks]
- d) What are the main differences between hub, bridge, and layer-2 Ethernet switch? [3 marks]
- e) List two advantages and disadvantages of having international standards for network protocols? [4 marks]
- f) Give two reasons for using Layered Protocols?

### QUESTION TWO

- a) There are two main network models, state and describe the difference between the two network models [8 marks]
- b) With the aid of diagram, differentiate between peer to peer network configurations and client server network configurations. [6 marks]
- c) Explain the TCP functions in a network [4 marks]

### QUESTION THREE

- a) Define guided and unguided transmission media and thoroughly explain the relevant examples in each case. Use drawing where applicable [11 marks]
- b) Explain the various Network topologies with aid of neat diagrams in each case [7 marks]

### QUESTION FOUR

- a) What is the difference between Switching and Routing [2 marks]
- b) Discuss the two (CSMA) carrier sense multiple access protocols [6 marks]
- c) Explain "token" as data link protocol [2 marks]
- d) Define the following terms used in computer networks (4 marks)
- i. Internetwork
  - ii. Server operating system
  - iii. Protocol
  - iv. Physical topology
- e) Explain the following data transmission techniques.
- i. Simplex
  - ii. Full duplex [4 marks]

### QUESTION FIVE

- a) State factors to be considered when selecting a transmission medium. [4 marks]
- b) List and explain four characteristics of a LAN. [4 marks]
- c) Each media type has its advantages and disadvantages. Outline five important factors to consider when selecting media for computer networks. [5 Marks]
- d) What is a router [2 marks]
- e) State any three information contained in a routing table [3 marks]