GARISSA UNIVERSITY

UNIVERSITY EXAMINATION 2017/2018 ACADEMIC YEAR ONE THIRD SEMESTER EXAMINATION

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCE

FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

COURSE CODE: DIT 004

COURSE TITLE: DATA COMMUNICATIONS AND NETWORKS I

EXAMINATION DURATION: 2 HOURS

DATE: 08/08/18   **TIME:9.00-11.00 AM**

INSTRUCTION TO CANDIDATES

- **The examination has FIVE (5) questions**

- **Question ONE (1) is COMPULSORY**

- **Choose any other THREE (3) questions from the remaining FOUR (4) questions**

- **Use sketch diagrams to illustrate your answer whenever necessary**

- **Do not carry mobile phones or any other written materials in examination room**

- **Do not write on this paper**

This paper consists of TWO (2) printed pages   *please turn over*

QUESTION ONE (COMPULSORY)

(a) Define *Data Communication* as used in computer networks **[2 Marks]**

(b) Define *node* as used in data communications giving two examples **[4 Marks]**

(c) Briefly describe the concept of *data communications* giving examples of software applications used for data communications **[4 Marks]**

(d) Describe **FIVE** components of data communication system using well-labeled diagrams.

[15 Marks]

QUESTION TWO

a) Describe **THREE** modes of data transmission using well labeled diagram **[9 Marks]**

b) Using well labeled diagrams, discuss **TWO** types of network connection **[6 Marks]**

QUESTION THREE

a. Define *logical topology* **[2 Mark]**

b. Describe **FOUR** factors to consider when setting up a network **[8 Marks]**

c. State **THREE** uses of a network **[3 Marks]**

d. Distinguish between *network* and *internet* **[2 Marks]**

QUESTION FOUR

a) What is a network *topology* **[2 Marks]**

b) Describe **FIVE** *physical topologies* using diagrams where applicable **[10 Marks]**

c) Give **THREE** characteristics of *Xender* as a technology used for data communication

[3 Marks]

QUESTION FIVE

a. Distinguish between *physical* topology and *logical* topology **[4 Marks]**

b. Using well labeled diagrams, represent *analog* and *digital* signals **[6 Marks]**

c. State **THREE** features of digital signals **[3 Marks]**

d. What is *signal attenuation* in data communications **[2 Marks]**

QUESTION SIX

a. State **THREE** advantages of modern smart phones in data communications **[3 Marks]**

b. Discuss the seven layers of the *OSI Reference Model* **[7 Marks]**

c. List **TWO** characteristics of *Bluetooth* as a technology for data communication **[2 Marks]**

d. State **THREE** factors to consider when selecting a network transmission media **[3 Marks]**