(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS

YEAR TWO SEMESTER ONE EXAMINATIONS

FOR THE DIPLOMA IN

(INFORMATION TECHNOLOGY)

COURSE CODE : DIT 069

COURSE TITLE : NETWORK AND DATA COMMUNICATION I

DATE: 19/01/2022 TIME: 2.00 P.M. - 4.00 P.M.

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO

QUESTION ONE [COMPULSORY] (24 MARKS)

(a) Define the following Abbreviations as used in computer networks **[6 marks]**

i. www

ii. https

iii. IP

(a) Explain why protocols are needed in data communication. **[4 marks]**

(b) With the aid of a well labelled diagram, contrast between digital signal and analog signal. **[4 marks]**

(c) Explain how guided media differs from unguided media [**4 marks]**

(d) What are THREE reasons for using OSI model in networking? **[6 marks]**

QUESTION TWO (18 MARKS)

(a) Differentiate between modulation and multiplexing **[2 marks]**

(b) What is the principal difference between connectionless communication and connection-oriented communication? **[4 marks]**

(c) Explain the functions of the following OSI layers **[6 marks]**

i. Transport Layer

ii. Session Layer

iii. Network Layer

(C) Describe THREE main multiplexing techniques. **[6 Marks]**

QUESTION THREE (18 MARKS)

(a) Describe the THREE essential attributes that should be met by a computer network for it to effectively share data among different computers in the world. **[4 marks]**

(b) List TWO advantages and TWO disadvantages of having international standards for network. **[4 marks]**

(c) Explain the functions of Data Link Layer. **[6 marks]**

(d) What are security threats to the network in your institution **[4 marks]**

QUESTION FOUR (18 MARKS)

(a) Explain any four advantages of optical fiber over twisted-pair and coaxial cable.

[6 marks]

(b) Explain the THREE main switching techniques in computer networks **[6 marks]**

(c) Explain THREE metrics used to measure network performance **[6 marks]**

QUESTION FIVE (18 MARKS)

(a) Briefly describe FOUR different types of noise which lead to transmission impairment **[6 marks]**

(b) Describe THREE main multiplexing techniques **[6 marks]**

(c) Describe the following protocols in media access category **[6 marks]**

i. Carrier sense multiple access/ collision detection

ii. Carrier sense multiple access/collision avoidance

iii. Token ring