(Knowledge for Development)

KIBABII UNIVERSITY (KIBU)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION

SECOND YEAR FIRST SEMESTER EXAMINATION

FOR THE DEGREE OF BACHELORS OF SCIENCE IN

(INFORMATION TECHNOLOGY)

COURSE CODE: BIT 214
COURSE TITLE: COMPUTER NETWORKING

DATE: 19/07/2022   TIME: 11.00 A.M. – 1.00 P.M. 2HRS

INSTRUCTIONS TO CANDIDATES:
ANSWER QUESTIONS ONE AND ANY OTHER TWO.

Paper Consists of 4 Printed Pages. Please Turn Over

QUESTION ONE (30 MARKS) [COMPULSORY]

a. Define the term network.   **[2 marks]**

b. With the aid of an example, contrast between a public and private network   **[2 marks]**

c. What is the position of the transmission media in the OSI model? Explain your answer.

                                                           [2 marks]

d. State the factors used to distinguish among the different types of network categories **[4 marks]**

e. The number of computers in a network is a major determinant of the network speed. However, there are other different factors which cause a computer network to be slow. Outline any three of them.   **[2 marks]**

f. Explain the major factor that determines the number of computers in a bus topology and the distance between different computers.   **[3 marks]**

g. Describe the term error and how it occurs with respect to data transmission.   **[3 marks]**

h. Explain the function of the Domain Name Server with a clear example.   **[3 marks]**

i. Describe the functions performed by the session layer.   **[4 marks]**

j. Elaborate the term privacy with respect to network management.   **[3 marks]**

k. Given IP address 132.6.17.85 and default class B mask, find the beginning address.

                                                           [2 marks]

QUESTION TWO (20 Marks)

a. Outline THREE different factors considered when selecting a transmission media

                                                           [3 marks]

b. State three Private Branch Exchange features which differentiate it from Centrex.

                                                           [3 marks]

c. Assuming you get a job as a network engineer in a multinational company that has five regional station located in different counties within the country that must be interconnected with others for smooth operation of the organization. The company is about to network the regional offices together. Each physical link must allow communication in both directions. Using your technical expertise, advice the management of the company based on the following:

   i. Recommend the most suitable Network topology for the organization. **[2 marks]**

   ii. Give detail explanation of the recommended topology. **[4 marks]**

   iii. Illustrate the explanation in (ii) with a diagram to show the interconnectivity of the five regional offices. **[3 marks]**

d. Differentiate between a server and a client **[2 Marks]**

e. Explain the three different addressing methods used in IPv6. **[3 marks]**

QUESTION THREE (20 Marks)

With the aid of a diagram, describe five different kinds of network topologies and how the nodes communicate. **[20 marks]**

QUESTION FOUR (20 Marks)

a. Describe the key feature of Integrated Services Digital Network which gives it an edge over classic telephone system. **[2 marks]**

b. Integrated Services Digital Network is categorized into two major types.

   i. Briefly describe two types **[4 marks]**

   ii. Justify the difference in speed and reliability between the two types in ' **i** ' .

   [4 marks]

c. Contrast between the B-channel and the D-channel with respect to ISDN. **[2 marks]**

d. Having cleared your semester examinations, you meet your former high school teacher who requests you to give a talk to computer studies students in your former high school about the web. Clearly discuss what you will present to make the students understand about the web. **[8 marks]**

QUESTION FIVE (20 Marks)

a. State three advantages of using digital subscriber line for internet transmission. **[3 marks]**

b. The router is an important component in networking. State the layer which makes it operational in networking. Explain your answer. **[3 marks]**

c. The data link layer has two sub-layers with each of them performing a unique function. State their names and explain the function performed by each sub-layer. **[4 marks]**

d. Describe the two different types of transmission services provided by the transport layer. **[4 marks]**

e. Explain three factors which limit transmission of internet over the digital subscriber line. **[6 marks]**