(Knowledge for Development)

KIBABII UNIVERSITY
(KIBU)

UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
FIRST YEAR FIRST SEMESTER

FOR THE DEGREE IN
(INFORMATION TECHNOLOGY)

COURSE CODE: BIT 112

COURSE TITLE: INFORMATION TECHNOLOGY FUNDAMENTALS

DATE: 19/05/2021   ~~13/04/2021~~   **TIME:** 2.00 P.M.-4.00 P.M.

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INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a) What is your understanding of the term computer system? **[2 Marks]**

b) Define the following terms as used in data communication and internet: **[4 Marks]**

      i. Internet

      ii. Intranet

      iii. Extranet

      iv. World wide Web

c) Computers are increasingly becoming powerful and useful tools. This is attributed to particular characteristics. Explain **TWO** of such characteristics. **[4 Marks]**

d) Computers can be classified by size into Supercomputers, mainframes, minicomputers and microcomputers. What is the functional difference between each of the four types of computers? **[4 Marks]**

e)

      i. Give your understanding of the term generation as used in Computer generations.

              [2 Marks]

      ii. Highlight **TWO** key hardware and **TWO** key software technologies of First-Generation Computers. **[2 Marks]**

f) Data processing activity is a very important aspect in any organization of any size or nature because it generates good information for decision making. Give **THREE** characteristics of a good information. **[3 Marks]**

g) What is the decimal equivalent of 110.101_2 **[3 Marks]**

h) Computer Software can be broadly classified into System and Application Software. With appropriate examples, differentiate between the two software categories. **[2 Marks]**

i) Give **TWO** advantages and **TWO** disadvantages of Speech Synthesizers. **[4 Marks]**

QUESTION TWO [20 MARKS]

a) State **THREE** characteristics of positional number system. **[3 Marks]**

b) Multiply the binary numbers 1010_2 and 1001_2. **[6 Marks]**

c) Given $514.AF_{16} \rightarrow X.Y_{10}$, Find the values of X and Y. **[4 Marks]**

d) Using signed magnitude method, show how a computer represents 17 and -17. **[3 Marks]**

e) Subtract 0111000_2 from 1011100_2 using 1C method. **[4 Marks]**

QUESTION THREE [20 MARKS]

a) What is meant by the term operating system? **[2 Marks]**

b) Discuss **THREE** parameters for measuring operating system's performance **[6 Marks]**

c) Discuss FOUR functions of the Operating system in a computer system. **[8 Marks]**

d) Differentiate between the following concepts:

      i. Batch Processing and Multiprogramming. **[2 Marks]**

      ii. Multi-Tasking and Multithreading. **[2 Marks]**

QUESTION FOUR [20 MARKS]

a) Devices that transform information from machine readable form into a form understandable by the human user are regarded as output devices:

      i. Can an input device operate as an output device at the same time? **[2 Marks]**

      ii. Discuss **TWO** broad categories of outputs. **[4 Marks]**

      iii. Why would one prefer to use a Liquid Crystal Display (LCD) over a Cathode Ray Tube (CRT) **[4 Marks]**

      iv. Explain the functional differences between the following output units:

            a. Screen Image Projectors and Computer Output on Microfilm. **[2 Marks]**

            b. Voice Response System and Speech Recognition System. **[2 Marks]**

b) Give **THREE** operational differences between impact and non-impact printers. **[3 Marks]**

c) State **THREE** advantages of a networkable printer over a stand-alone printer. **[3 Marks]**

QUESTION FIVE [20 MARKS]

a) You are the network administrator in your organization. Your organization is in the process of implementing a network infrastructure:

      i. State **FOUR** reasons that would drive an organization to implement a networked infrastructure. **[4 Marks]**

      ii. Explain **FOUR** factors you would consider before adopting any network design strategy. **[8 Marks]**

      iii. Under what circumstance would you opt for Mesh topology over Bus Topology **[4 Marks]**

b) Explain **TWO** advantages of implementing a hybrid network topology. **[4 Marks]**