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**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR**  
**FIRST YEAR, FIRST SEMESTER EXAMINATION**  
**FOR THE BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**  
**KIT 2101 FUNDAMENTALS OF INFORMATION TECHNOLOGY**

Date: 12<sup>TH</sup> AUGUST 2024  
Time: 11:30AM – 1:30PM

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) Differentiate between the following terms
- i) Data and Information (2 Marks)
  - ii) Ready-made software and tailor made software (2 Marks)
- b) "Computer system is an asset to a business organization and requires proper security." Discuss four factors that cause security concerns in the usage of the computers system and how to counter them. (4 Marks)
- c) Assuming that you wish to acquire a desktop computer for organization, highlight four key specifications of the computer that you MUST consider and specify the units of measurement used to determine the specification. (4 Marks)
- d) A company is replacing the personal computers used by its employees. Each employee has been offered the choice of a laptop or a desktop computer. For each of the computer types, describe two advantages to an employee for choosing it. (4 Marks)
- e) Companies use ICT systems because of the benefits that they provide. Giving examples, discuss how the use of ICT systems can result in each of the following benefits to a Printing firm.
- i) Reduction in costs (1 Mark)
  - ii) Increased speed of operation (1 Mark)
  - iii) Increased business opportunities (1 Mark)
- f) Convert the following numbers:
- i)  $14B_{16}$  to binary (3 Marks)
  - ii)  $(378)_{10}$  to octal (2 Marks)
  - iii)  $(756)_8$  to hexadecimal (3 Marks)
- g) Subtract  $(11010)_2$  from  $(101000)_2$ . (3 Marks)

**QUESTION TWO (20 MARKS)**

- a) Write short notes on the following computing concepts:
- i) Virtualization (2 Marks)
  - ii) Cloud computing (2 Marks)
  - iii) Smart technology (2 Marks)
- b) Describe the five hardware units that constitute a computer, specify the role for each unit. (5 Marks)

- c) Analyse the impact that networks have had on businesses and the society's everyday life. (4 Marks)
- d) The Windows Update feature has been part of the Windows operating system since the release of Windows 98. This tool enables the operating system to notify the user when update features are available for downloading on the internet. On later versions of Windows, the operating system offers the computer user the option to update itself without first notifying the user. Describe in your opinion how you feel about this option and the pros and cons of it. (5 Marks)

### **QUESTION THREE (20 MARKS)**

- a) Differentiate between downloading and uploading (2 Marks)
- b) Define the term Internet Service Provider and provide four examples of ISP's in Kenya. (5 Marks)
- c) Computers may be categorized based on size, price and capabilities. Discuss the four computer categories specifying the distinctive characteristics for each. (8 Marks)
- d) Imperative programming was the dominant paradigm from the dawn of computing until about 1990, after which it was overtaken by object-oriented programming. Explain this development and justify why functional or logic programming has never become dominant? (5 Marks)

### **QUESTION FOUR (20 MARKS)**

- a) Differentiate between RAM and ROM in terms of their data storage and access. (4 Marks)
- b) Highlight four ways in which a virus can affect your computer system. (4 Marks)
- c) Describe six virus preventive measures. (6 Marks)
- d) A computer is an electronic device that processes data by following a set of instructions. A computer system is a set of parts, including the computer itself, that work together to perform tasks. These tasks may be relatively simple, as in a calculator for computing numbers, or they may be very complex, as in air traffic control systems for directing airplanes. The computer system that you are using now, could include a monitor, keyboard, mouse and the computer itself or it may be just a smartphone. They help you to carry out a variety of tasks such as writing emails, playing games and surfing the internet.
  - i) Explain how a computer processes data. (1 Mark)
  - ii) List any five tasks a computer can carry out mentioned in the case. (5 Marks)

### **QUESTION FIVE (20 MARKS)**

- a) Describe four Internet application areas in today's society. (4 Marks)
- b) (i) Define an Operating system (1 Marks)
- (ii) Explain three functions of the operating system (6 Marks)
- c) Describe the role of a web browser and identify any four commonly used web browsers. (3 Marks)
- d) Carry out the following arithmetic calculations:
  - i)  $2407_{(8)} + 176_{(8)}$  (3 Marks)
  - ii)  $111011_{(2)} * 1101_{(2)}$  (3 Marks)