

EGERTON



UNIVERSITY

UNIVERSITY EXAMINATIONS

NJORO CAMPUS

FIRST SEMESTER 2011/2012

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE BACHELOR OF
COMPUTER SCIENCE**

COMP 101: INTRODUCTION TO COMPUTERS APPLICATIONS

STREAM:

TIME: 2 HOURS

DAY: MONDAY, 3.00 – 5.00 PM

DATE: 6/5/2013

INSTRUCTIONS

Answer QUESTION ONE and ANY other TWO from Section B

SECTION A

QUESTION ONE (30 MARKS)

- a. Briefly describe the architecture of the computer system and how instructions are dispatched at various levels with a neat diagram **[6 marks]**
- b. The earlier uses of information technology were large business organization, universities and governments. However, today computers are used in small and large organizations and by individuals.

Required:

- c. Identify two positive and one negative effect of information communication technology on the following parties:
 - i. Individuals **[3 marks]**
 - ii. Organizations **[3 marks]**
 - iii. Society **[3 marks]**

- d. Briefly explain the factors which should be taken into consideration when buying random access memory (RAM). **[3 marks]**
- e. Suggest three ways of avoiding potential computer hardware faults. **[3 marks]**
- f. Identify three factors, apart from the number of computers on a network, which would affect the performance of a particular computer network. **[3 marks]**
- g. Mr. Eric Matendechere, a building materials distributor, is planning to computerize his operations. He intends to first create a database of his building materials inventory and has approached you for advice.
- h. Explain to Mr. Eric Matendechere three advantages and three disadvantages of databases. **[6 marks]**

QUESTION TWO [20 MARKS]

- a) Giving examples, describe the four functional units of a typical computer **[4 marks]**
- b) Briefly assess the historical milestones in the development of the electronic computer **[6 marks]**
- c) Differentiate between the following terminologies:
- i) Bit and Byte
 - ii) SRAM and DRAM
 - iii) Digital computer and Analog computer
- [6 marks]**
1. Convert the following numbers
- a) $1111111111_2 = ?_{16}$
 - b) $666_8 = ?_2$ **[4 marks]**

QUESTION THREE [20 MARKS]

- a. Vixsoft Technologies deals with online solutions, the organization plans to expand this solutions to other stand alone services so that the clients can get the best of it all. One major aspect that they want to establish is a business process which will enable the clients transact and relate to this system from the lowest level, The company has started with business information systems then venture into a networked system.

Required:

- i. Being an expert equipped with computer skills advice the company on what information systems are available and at what level will they implement this task. **[6 marks]**
 - ii. Advice on the business benefits of adopting a networked system globally **[8 marks]**
- b. Convert the following numbers as appropriate:
- i) 89.25_{10} to binary
 - ii) 1010011.101_2 to decimal
 - iii) $A3C.2_{16}$ to binary
- [6 marks]**

QUESTION FOUR [20 MARKS]

- a) Country X is conducting elections with an integrated but very user friendly system which is not very secure. The working nature of the system allows individuals data to be stored at a secure database .During the process the system suffers from an attack, which is probably intrusion.

Required:

- i. Advice on how the system security can be enhanced **[5 marks]**
 - ii. what will be needed for one to verify authenticity of who will be accessing the system so that we can maintain intrusion detection **[3 marks]**
- b) When starting the computer, many steps are followed as listed below. Explain all the actions that take place in each of the steps: -
- i. BIOS and set up program **[2 marks]**
 - ii. Booting process **[2 marks]**
 - iii. system utility loading and user authentication **[2 marks]**
- b). Describe the functions of the Operating Systems **[6 marks]**

QUESTION FIVE [20 MARKS]

- a. A local IT firm offers desktop services to small clients, the firm owns around 10 hosts and the hosts cannot communicate to each other. Now the firm plans to have an efficient way of communicating to the outside world including interactive devices. The firm will first start by networking all the hosts, then configure them accordingly with relevant protocols and suitable data storage media.

Required.

- i. Describe to this IT firm all the networking components that will be required to set up a running network and their functions. **[7 marks]**
- ii. How will data be stored and what will be the suitable back up components needed **[4 marks]**
- iii. What threats and attacks are likely to face this firm after it has been successfully networked, and how will you overcome/prevent all this **[5 marks]**
- iv. Explain salient features of Analog, Digital and Hybrid Computers. **[4 Marks]**
