**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF AGRICULTURAL EXTENSION**

**1st YEAR FIRST SEMESTER 2016/2017 ACADEMIC YEAR**

**MAIN CAMPUS**

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**COURSE CODE: SCS 3111**

**COURSE TITLE: COMPUTER ORGANIZATION AND APPLICATION**

**EXAM VENUE: LAB 5** **STREAM: BSc. Agriculture & Ext)**

**DATE: 19/12/16** **EXAM SESSION:2.00 – 4.00 PM**

**TIME: 2.00 HOURS**

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**INSTRUCTIONS:**

1. **Answer Question 1 (Compulsory) and ANY other two questions**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

**QUESTION ONE – 30 MARKS (COMPULSORY)**

(a) Define the following terms as used in Computer Systems

i. Main Memory

ii. Cache memory

iii. Computer program

iv. Machine language

v. Registers [5 Marks]

(b) Distinguish between the following set of terms

i. Primary memory and Auxiliary memory

ii. Random files access and sequential access

iii. System software and utility software

iv. Analogue and digital computers

v. Byte and bits [10 Marks]

(c) Name four different examples of Word processor software highlighting the differences between the four software. [4 Marks]

(d) Data within a computer goes through several processes including input, storage, output, processing. Explain each process giving examples of devices used in each. [5 Marks]

(e) By the use of an illustration, describe the parts and organization of computer in a computer system clearly explaining the function of each part. [6 Marks]

**QUESTION TWO – (20 MARKS)**

(a) Describe the technological advancements in each of the following generations of evolution in the history of Computers.

i. First Generation computers
ii. Second generation
iii. Third Generation computers [6 Marks]

(b) Describe the characteristics of optical and magnetic disks clearly explaining the technologies implemented in each. [4 Marks]

(c) Explain the meaning of the following terns as used in the computer systems:

i. EEPROM [2 Marks]

ii. Vacuum tubes [2 Marks]

iii. IBG [2 Marks]

(d) Differentiate between SRAM and DRAM and with reasons state which one is suitable for making cache memory [4 Marks]

**QUESTION THREE – (20 MARKS)**

(a) Convert the binary number, 110010101001111 to the following format.

(i) Octal [2 Marks]

(ii) Decimal [2 Marks]

(iii) Hexadecimal [2 Marks]

(b) Explain the following terms and state how they affect system performance.

i) Bus width [2 Marks]

ii) Word size [2 Marks]

(c) Briefly describe four benefits of using Proprietary Software. [4 Marks]

(d) With the help of a well labelled diagram, explain Von Neumann computer architecture [6 Marks]

**QUESTION FOUR – (20 MARKS)**

(a) By explaining each of the following terms distinguish between:

(i) Smart card and a Credit Card . [2 Marks]

(ii) MICR and OMR. [2 Marks]

(iii) Laser printers and Dot-matrix printers. [2 Marks]

(iv) Multiprogramming and Parallel Processing. [2 Marks]

(v) Real time processing and On-line processing. [2 Marks]

(b) (i) What do you understand by the term word-processor. [1 Mark]

(ii) Describe the process you would do to carry out the following tasks using a word-processor software

A. Mail Merging

B. Word Art Creation

C. Letter head design [9 Marks]

**QUESTION FIVE – (20 MARKS)**

(a) A LAN (Local Area Network) is often installed by a business to achieve either or both of the following objectives:

i) Sharing of peripherals

ii) Sharing of data

By reference to a typical business explain each of the objectives. [4 Marks]

(b) Outline TWO possible problems of sharing data within a network. [2 Marks]

(c) A magnetic tape has a maximum length of 2400 feet and its data recording density is 160000 bytes per inch. The tape travels at 1260 feet per minute.

Required:

(i) What is the storage capacity of this tape? [3 Marks]

(ii) What is the data transfer rate of this tape [3 Marks]

(d) What is a file password? [2 Marks]

(e)Define the terms Hardware and Software. [2 Marks]

(f) Explain the meaning of the following terms within the context of computer systems

i) Virtual storage [2 Marks]

ii) Co-Processor [2 Marks]