MURANG'A UNIVERSITY COLLEGE

(A constituent college of Jomo Kenyatta University of Agriculture and Technology)

School of Business & Economics

First Semester End of Trimester 2013/2014 examinations

Bachelor of Business and Information Technology

Unit Name: Computer Organization

Unit Code: ICS 2101

1st Semester Year 1

Date: **time:**

Instructions

Answer Question ONE and any other TWO Questions

QUESTION ONE

a) Dinstinguish between the following terms. (6 marks)

i.) Computer organization and computer architecture

ii.) Synchronous bus and asynchronous bus

iii.) Multiprogramming and pipelining

b) Draw a well labelled diagram showing the main components of the Von Neumann architecture computer and explain their functions. (9 marks)

c) What is instruction register (IR) and program counter (PC) used for? (6 marks)

d) Highlight the basic steps required to execute an instruction by the processor. (6 marks)

e) Explain the concept Direct Memory Access I/O. (3 marks)

QUESTION TWO

a) Explain **two** reasons why I/O devices cannot be directly connected to the system bus. (3 marks)

b) Highlight **four** factors considered in designing an I/O subsystem? (8 marks)

c) Describe the **three** mapping techniques used in cache memories. (9 marks)

QUESTION THREE

a) Storage technologies at all levels of the storage hierarchy can be differentiated by evaluating certain core characteristics as well as measuring characteristics specific to a particular implementation. Using relevant examples, discuss any **four** of the characteristics. (10 marks)

b) Describe any **four** different types of addressing modes. (8 marks)

c) What do you understand by the term memory mapped I/O? (2 marks)

QUESTION FOUR

a) Explain how data is organized and accessed in the magnetic disks. (3 marks)

b) Differentiate between a half adder and full adder. (3 marks)

c) Explain the methods of achieving the 2's complement (4 marks)

d) Describe how addition and subtraction of floating point operations are carried out with an example and show the algorithm / flow chart.. (8 marks)

e) What is signed binary? (2 marks)

QUESTION FIVE

a) Define the term interrupts and explain any **three** classess of interrupts. (8 marks)

b) Higlight **four** characteristics of Reduced Instruction Set Computers (RISC) architectures.

(8 marks)

c) Explain **four** potential benefits of using RISC over Complex instruction set computers. (4 marks)