



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) Distinguish 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** classes of interrupts. (8 marks)
- b) Highlight **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)