



MURANG'A UNIVERSITY COLLEGE

(A Constituent College of Jomo Kenyatta University of Agriculture and Technology)

University Examinations 2014/2015

SCHOOL OF BUSINESS AND ECONOMICS

**FIRST YEAR 1ST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
BUSINESS INFORMATION TECHNOLOGY**

ICS 2101: COMPUTER ORGANIZATION

SPECIAL/SUPPLEMENTARY EXAMINATIONS

DATE: 4TH AUGUST 2015

TIME 2 HOURS

Instructions: Answer Question 1 and Any Other Two.

Question ONE: (30 marks) – Compulsory

- a) Briefly explain Von Neumann Architecture and highlight its drawbacks. (8 marks)
- b) Computers employ many different types of memory to hold data and programs
- i.) Using a well labeled diagram, describe the computer memory hierarchy. (6 marks)
 - ii.) Justify the existence of cache memory in a computer's processor. (2 Marks)
 - iii.) Explain the concept of virtual memory. (2 marks)
- c) Write short notes on the following.
- (i) Instruction pipeline. (4 marks)
 - (ii) DMA based data transfer. (4 marks)
 - (iii) System bus (4 marks)

Question TWO

- a) Distinguish between programmed I/O and interrupt driven I/O and state how each affects the performance. (6 marks)
- b) Explain what is an instruction and the different parts of an instruction. What the significance of each part of an instruction with an example? (4 marks)

- c) Explain the sequence that takes place when an interrupt occurs. (6 marks)
- d) Distinguish the terms burst transfer and cycle stealing in data transfer. (4 marks)

Question THREE

- a) Describe the different conflicts that will arise in pipelining and explain how they are resolved (10 marks)
- b) Briefly differentiate RISC machine from CISC machines. (10 Marks)

Question FOUR

- a) What is meant by Addressing Mode? Explain any four different Addressing Modes with an example. (10 marks)
- b) In connection with the assembly language, what do you understand by
- i.) Field (2 marks)
 - ii.) symbolic address (2 marks)
 - iii.) pseudo instructions (2 marks)
- c) Explain four advantages of assembly language over machine language. (4 marks)

Question FIVE

- a) Explain the difference between vectored and non-vectored interrupt. state examples of each. (8 marks)
- b) Perform $(-35) - (+40)$ with negative numbers in signed 2's complement representation. (6 marks)
- c) Differentiate between synchronous and asynchronous data transfer method. (6 marks)