



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

CERTIFICATE IN COMPUTER MAINTENANCE & ICT – CMNT 2K 11M

ECT 1108: COMPUTER ORGANIZATION & ARCHITECTURE

END OF SEMESTER EXAMINATIONS

SERIES: DECEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination - Answer Booklet This paper consist of FIVE questions in TWO sections A & B Answer question ONE (COMPULSORY) and any other TWO questions Maximum marks for each part of a question are as shown This paper consists of THREE printed pages

SECTION A (COMPULSORY)

Question 1 - 30 Marks

a)	Explain the meaning of the term computer architecture.(illustrate using a diagram	(4 marks)		
b)) Differentiate between computer architecture and computer organization.			
c)	Explain why computers use the binary number system for data representation.	(4 marks)		
1)		(4 marks)		
d)	Perform the following conversions:	(6 marks)		
	 i. Convert binary 00011011₂ to decimal ii. Convert decimal 278₁₀ to binary iii. Convert 19B116₁₆ to binary 	(0 114110)		
e)	Explain the Von Neumann architecture of microprocessors.			
f)	Explain the following characteristics of CPUs.	(4 marks)		
		(8 marks)		
	i. Multi-core			
	ii. Multiprocessor			
	iii. Multithreading			
	iv. Over clocking			

SECTION B (ANSWER ANY TWO QUESTIONS)

Question 2 (20 marks)

a)	Explain th	ain the Instruction cycle. (8 ma				
b)) State the function of the following components of the control unit.					
	i. ii.	Program counter	(8 marks)			
	11. iii.	Instruction register Processor status word				
	iv.	Stack pointer				
c)	List the fo	our main components of a microprocessor.	(4 marks)			
<u>Qu</u>	<u>estion 3 (20</u>	<u>) marks)</u>				
a)) Explain the meaning of Direct Memory Access.					

(2 marks)
 b) Describe memory hierarchy in relation to computer data storage.(illustrate using a diagram)
 (10 marks)
 c) Buses are the collection of wire through which data is transmitted from one part of the computer

to another. Outline **4** main buses. (8 marks)

Question 4 (20 marks)

a) Explain the meaning of the term volatility in relation to memory.

(2 marks)

b)	State the 6 main functions performed by I/O interfaces.		
	Explain the 4 main types of ROM.	(6 marks)	
,	List the 4 main operations performed by a computer.	(8 marks)	
,	estion 5 (20 marks)	(4marks)	
<u>a)</u>	_Briefly outline the history of computers, stating the timeline and the major technological inventions of each generation.		
b)	Explain 3 factors that determine disk access time.	(10 marks)	
c)	Differentiate between random access and sequential access.	(6 marks)	