TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

UNIVERSITY EXAMINATION FOR:

BACHELOR OF TECHNOLOGY IN INFORMATION COMMUNICATION

TECHNOLOGY

EIT 4304: COMPUTER ARCHITECTURE AND ORGNIZATION

END OF SEMESTER EXAMINATION

SERIES: AUGUST2017

TIME:2HOURS

DATE:3Sep2017

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

Question ONE

a.)   Different microprocessor architecture support various data size. Instruction set can be processes in various data size. Using relevant examples and with the aid of diagram, discuss the following data sizes:

            i.   word   (5 marks)

            ii.   long word   (5 marks)

b.)   The registers in the processor perform two roles brief explain the roles.   (4 marks)

c.)   An interrupt is a signal from some device or source seeking the attention of the processor. Discuss the different types of interrupts.   (6 marks)

d.)   Using relevant examples discuss the following operations of a microprocessor

i. Fetch Cycle (5 marks)

ii. Execution Cycle (5 marks)

Question TWO

a.) A bus is shared communication link. It has a single set of wires used to connect multiple subsystems. Give two advantages and two disadvantages of buses. (5 marks)

      i. advantage

      ii. disadvantage

b.) Buses are traditionally classified as one of 3 types. Discuss the following classification of buses.

      i. Processor memory buses (5 marks)

      ii. I/O buses (5 marks)

      iii. Backplane buses (5 marks)

Question THREE

a.) Distinguished between the following microprocessor performance metric measurements:

      i. MIPS (Million Instructions per Second) (5 marks)

      ii. MHz (Millions of clock cycles per second) (5 marks)

b.) Different microprocessor architecture support various data size. Instruction set can be processes in various data size. Using relevant examples and with the aid of diagram, discuss the following data sizes

      i. nibble (5 marks)

      ii. byte (5 marks)

Question FOUR

a.) There are different ways to classify computers. One of the more widely used classifications, in use since 1966, is called Flynn's Taxonomy. Using relevant examples and with aid of diagram discuss the following classification of computers:

      i. SISD Computer Architecture (5 marks)

      ii. SIMD Computer Architecture (5 marks)

iii.	MISD Computer Architecture	(5 marks)
iv.	MIMD Computer Architecture	(5 marks)

Question FIVE

A computer's instructions and their formats are known as its Instruction Set Architecture (ISA). The instruction is the fundamental unit of work. It is specified two things; the opcode: operation to be performed and operands: data/locations to be used for operation. An instruction is encoded as a sequence of bits, which might have fixed length such as 16 or 32 bits. Using relevant examples describe the following instruction processes of a computer:

i.	Fetch Instruction from memory	(4 marks)
ii.	Decode Instruction	(4 marks)
iii.	Evaluation Address	(4 marks)
iv.	Execute Operation	(4 marks)
v.	Store Results	(4 marks)