MAASAI MARA UNIVERSITY

UNIVERSITY EXAMINATIONS 2022/2023 (REGULAR)
SCHOOL OF SCIENCE AND INFORMATION SCIENCES
UNIVERSITY EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SECOND YEAR FIRST SEMESTER EXAMINATIONS

COURSE CODE: COM 2107

COURSE TITLE: ASSEMBLY LANGUAGE PROGRAMMING

DATE: 7th APRIL 2022 TIME: 11:00am-1:00pm

INSTRUCTIONS

- Answer Question ONE and any other TWO

SECTION A

QUESTION ONE (COMPULSORY 30 MARKS)

a) Outline the meaning of the following instructions as used in assembly language programming **[10 Marks]**
   i. ADD CX, (BX+SI+16)
   ii. MOV EAX, 3450H
   iii. ADD AX, CX
   iv. MOV EDX, (2433H)
   v. MOV CX, (SI+8)

b) Calculate the corresponding physical and logical address for Code segment (CS) where, Segment address for CS is 1111H and instruction pointer (IP) is 6721H **[6 Marks]**

c) Discuss three sections of an assembly program **[6 Marks]**

d) Differentiate an offset address from a starting address **[4 Marks]**

e) List any four typical assembly language opcodes **[4 Marks]**

SECTION B

QUESTION TWO

a) State the syntax of the following instructions as used in assembly language
   i. MOV instruction **[4 Marks]**
   ii. INC instruction **[4 Marks]**
   iii. ADD and SUB Instructions **[4 Marks]**

b) Discuss four types of general purpose registers **[4 Marks]**

c) Convert CS : 2441H (16 bit code segment value) into 20 bit value **[4 Marks]**

QUESTION THREE

a) Discuss the procedures of performing the following using NASM/MASM;
   i. Creating and Opening a File **[5 Marks]**
   ii. Opening an Existing File **[5 Marks]**
   iii. Reading a file **[5 Marks]**
   iv. Writing to a file **[5 Marks]**

QUESTION FOUR

a) Discuss formats for AND, OR, XOR, TEST, and NOT Boolean logic instructions **[10 Marks]**

b) Discuss three kinds of assembly language statements **[6 Marks]**

d) Discuss four types of segment registers **[4 Marks]** **//END**