KENYA METHODIST UNIVERSITY
END OF TRIMESTER ONE EXAMINATION, APRIL 2009

FACULTY	:	ARTS AND SCIENCES.
DEPARTMENT	:	COMPUTE.R INFORMATION SYSTEMS.
COURSE CODE	:	CISY 311
COURSE TITLE	:	MICRO-PROCESSOR PROGRAMMING.
TIME	:	2 HOURS

INSTRUCTIONS: Answer Question One and any other two questions

Question 1

a) What is a program? [2 marks]

b) (i)Name the 3 basic parts of a typical microprocessor [3 marks]

(ii)Explain what each of the above parts does [3 marks]

c) Explain the following:

- Bit
- Nibble
- Byte
- Word [4 marks]

e) What are flags? [2 marks]

f) (i) Compliment 1001 [2 marks]

(ii)Rotate 11000011b left [2 marks]

g) Using the terms 'reading' and 'writing' distinguish between program memory and data memory [2 marks]

SECTION B: (Attempt any two questions from this section)

Question 2

a) Distinguish between a branch and a conditional branch as used in assembly language. [2 mark]

b) Name any 2 CONTROL flags. [2 marks]

c) What is an accumulator as used in microcontrollers [2 marks]

d) Explain the following:

- Jump on bit
- Compare and jump
- CALL [6 marks]

e) IA-32 processors have three basic modes of operation: Name and explain them [6 marks]

f) What is the stack [2 marks]

Question 3

a) Convert to decimal:

- 1011b [2 marks]
- 10100101b [2 marks]
- A5h [2 marks]

b) The binary value for 510 is 111111110b (9 bits). An accumulator is only 8 bits wide. Explain how you would store this 9 bits number in an 8 bit accumulator [5 marks]

c) There are 3 buses associated with the memory subsystem, namely data bus, control bus and address bus. Explain the functions of each [3 marks]

d) Name any SIX types of STATUS flags [6 marks]

Question 4

a) Distinguish between SET and CLEARED as used in flags [4 marks]

b) Calculate the following:
1010 XOR 1110
1001 AND 1000
1110 OR 1001 [6 marks]

c) (i)What is a directive [2 marks]

(ii)List 2 directives [2 marks]

d) Distinguish between Absolute call and Long call [4 marks]

e) Name 2 forms of the JMP instruction [2 marks]

Question 5

a) What is a label? [1 marks]
b) Give 5 examples of logical instructions [5 marks]
c) Explain the following Data transfer techniques

- Moving
- Exchanging
- Exchanging digit
- Swapping [8 marks]

d) Give 2 examples of:

- General registers
- Segment registers
- Pointer register [6 marks]