(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR TWO SEMESTER TWO

FOR THE DEGREE OF
COMPUTER SCIENCE

COURSE CODE : **CSC 222**

COURSE TITLE : **MICROPROCESSOR & ASSEMBLY PROGRAMMING**

DATE: 12 /02/2021   TIME: 08:00 A.M – 10:00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO

QUESTION ONE [COMPULSORY] [30 MARKS]

a) Describe FOUR capabilities of micro processor. [4 marks]

b) Describe the 2ND generation microprocessor. [4 marks]

c) Differentiate between RISC and CISC. [6 marks]

d) True/False Question. Explain your answer

    I.   80806 has four segments [1 mark]

    II.   The physical address of 8086 has 16 bits [1 mark]

    III.   The size of flag register is 16 [1 mark]

    IV.   16 bit flag register has 9 flags. [1 mark]

e) Describe what an interface is in microprocessor and assembly language programming.

[4 marks]

f) Describe the main advantage of the segmented memory [4 marks]

g) Describe the two modes of 8086. [4 marks]

QUESTION TWO [20 MARKS]

a) Explain the working of 8251 programmable communication interface. [6 marks]

b) Explain the advantages of DMA controller. [4 marks]

c) Differentiate between synchronous and asynchronous bus [4 marks]

d) Describe the following terms; linker, loader and assembler [6 marks]

QUESTION THREE [20 MARKS]

a) Distinguish between the jump and loop instruction. [4 marks]

b) Differentiate between the respective shift and rotate instructions [4 marks]

c) Describe the meaning of the following:

    I.   Pipelining [2 marks]

    II.   Decoding [2 marks]

    III.   Instruction formation [2 marks]

    IV.   Execution [2 marks]

d) Fill in the blanks

    I.   Assembly languages use _____ to represent operation codes [1 mark]

    II.   A translators which translates assembly language to machine is called _____ [1 mark]

III.   Chip select is use for _____   [1 mark]

IV.   A micro processor is _____ of the computer   [1 mark]

QUESTION FOUR [20 MARKS]

a) Describe the 1st, 3rd and 4th generation of microprocessor   [6 marks]

b) Differentiate between Intel and Motorola processor.   [6 marks]

c) Explain the functions of the following signals of 8086

    I.   ALE   [1 mark]

    II.   DT/R   [1 mark]

    III.   DBN   [1 mark]

    IV.   LOCK.   [1 mark]

d) Describe the function of opcode prefetch queue in 8086.   [4 marks]

QUESTION FIVE [20 MARKS]

a) Write a program using assembly language to add two numbers.   [6 marks]

b) Explain in details the register of 8086.   [6 marks]

c) Describe any TWO addressing modes.   [4 marks]

d) Describe the Read/Write policy of cache.   [4 marks]