"Investing in Africa's Future"

COLLEGE OF BUSINESS PEACE, LEADERSHIP AND GOVERNANCE

NCIS 306: COMPUTER ARCHITECTURE AND ORGANIZATION

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2022

LECTURER: MR T.S MUWANI

DURATION: 3 HOURS

INSTRUCTIONS

Answer **ANY FOUR** Questions
Total possible mark is 100

Start **each** question on a new page in your answer Booklet.

Question 1

a) Explain the different types of interrupts in a microprocessor system [5 marks]
b) What are some of the basic assembly language rules? [5 marks]

c) Which two hardware techniques are used to create a priority? Describe each technique. [10 marks]
d) Define flip-flops [5 marks]

Question 2
a) What are the different types of fields that are part of instruction? [8 marks]
b) Explain the steps in an instructional cycle? [15 marks]
c) What does the term "*wait state*" mean? [2 marks]

Question 3
a) Distinguish between Computer Architecture Computer Organization [12 marks]

b) With the aid of a block diagram, what are the common components of a microprocessor? [13 marks]

Question 4

X = A'BC+ AB'C+ ABC'+ ABC

a) Using K maps, simplify the expressions above [5 marks]

b) Use the laws and rules of Boolean algebra to simplify the same expressions [5 marks]

c) Design a logic circuit for the simplified expressions [10 marks]
d) What is an Addressing Mode? [5 marks]

Question 5
a) Discuss the primary functions of the motherboard. [10 marks]

b) Explain the basics of number systems as used by Computers [12 marks]

c) State the numerous classifications of computer memory[3 marks]

END OF PAPER