ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE:	BIS223
COURSE TITLE:	EMBEDDED SYSTEMS
SPECIAL REQUIREMENTS:	NONE
LEVEL:	2
EXAM DURATION:	3 hours
DATE:	APRIL 2024

11 APR 2024

INSTRUCTIONS TO CANDIDATES:

1. Answer any **four** questions
2. Number your answers accordingly
3. Start each question on a new page

Question 1

a) State and explain the main components of an embedded system? [6 marks]

b) Compare and contrast the RISC and CISC architectures [10marks]

c) List any four important considerations when selecting a processor [4 marks]

Question 2

a) Discuss the following registers:

i) Accumulator

ii) Program counter

iii) Instruction register [6 marks]

b) Give a detailed outline of the interrupt system organization in an Intel 8085 microprocessor [14marks]

Question 3

a) Give a detailed outline of the evolution of microprocessors to microcontrollers [10marks]

b) Explain the following:

i) Machine cycle

ii) Instruction cycle [6 marks]

a) Define the following terms:

i) System

ii) Embedded system [4 marks]

Question 4

a) What characteristics should a system have in order for it to be classified as an embedded system? [2 marks]

b) Explain the following:

i) Instruction set [3 marks]

ii) Pipelining [3 marks]

iii) Cache memory [3 marks]

iv) Co-processing [3 marks]

c) Explain in detail what determines the power of any processor [6 marks]

Question 5

a) Compare and contrast an Embedded Systems and a General Computing Systems [10 marks]

b) Embedded system is in constant interaction with the real world through the use of sensors and actuators

i) What is the use of sensors in an embedded system [2 marks]

ii) What is the use of actuators in an embedded system [2 marks

c) List any 6 input/output devices that found in a typical embedded system [6 marks]

0/15 pm