



ZIMBABWE EZEKIEL GUTI UNIVERSITY

**FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS
DEVELOPMENT**

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE : BIS 223
COURSE TITLE : Embedded Systems
SPECIAL REQUIREMENTS : None
DURATION : 3 Hours
LEVEL : 2.2
DATE : 25 SEP 2024

INSTRUCTIONS TO CANDIDATES:

1. Answer any 4 Questions from the whole paper.
2. The total Marks for the examination is 100.
3. The marks allocation for each question are indicated in square brackets[] .

QUESTION 1

- a) Discuss the characteristics of an Embedded System. [15]
- b) Give 10 separate examples of embedded systems and their corresponding uses. [10]

[TOTAL MARKS: 25]

QUESTION 2

- a) Draw and label the Basic Structure of an Embedded System, giving a brief description of each component [25]

[TOTAL MARKS: 25]

QUESTION 3

- a) Compare and contrast a microprocessor and a microcontroller [10]
- b) Draw and label the Von Neumann Architecture of an embedded system [7]
- c) Compare and contrast the Von-Neumann Architecture and the Harvard Architecture of an embedded system [8]

[TOTAL MARKS: 25]

QUESTION 4

CISC refers to **Complex Instruction Set Computer**, while RISC refers to **Reduced Instruction Set Computer**.

- a) Differentiate CISC from RISC using a table [16]
- b) Draw and label a simple block diagram of a microprocessor[9]

[TOTAL MARKS: 25]

QUESTION 5

- a) Explain the function of a central processing unit (CPU) in an embedded system [8 marks]
- b) Explain the fetch-decode-execute cycle in your own words. Include a brief description of each stage. [9 marks]
- c) Compare and contrast an Embedded Systems and a General Computing Systems [8 marks]

End of Paper