

KIRIRI WOMEN OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS

YEAR FOUR EXAMINATIONS FOR THE AWARD OF THE DEGREE OF BACHELOR OF

SCIENCE IN BUSINESS INFORMATION TECHNOLOGY

KBI 2303: SPECIALIZED PROGRAMMING LANGUAGES

STREAM:

TIME: 2 HOURS

DAY/DATE:

**Instructions**

Answer **QUESTIONS ONE** and any other **TWO** questions.

Write your answers legibly and use your time wisely.

This is a closed book exam. No reference material is allowed in the exam room.

No mobile phone allowed in the exam room (make sure to switch off)

**PART A (ANSWER ALL)**

**QUESTION ONE (30 MARKS)**

- a) Explain what makes a language to be considered as a specialized programming language. (2 Marks)
- b) Explain at least TWO purposes of specialized programming languages. (4 Marks)
- c) List and explain TWO advantages of domain-specific languages. (4 Marks)
- d) Differentiate between External and Internal domain specific languages. (4 Marks)
- e) Describe your understanding of what component-based software engineering is, while defining a component. (4 Marks)
- f) List two goals of the Business Process Modeling Notation (BPMN) (4 Marks)
- g) By use appropriate diagrams, list the BPMN notations. (4 Marks)
- h) Differentiate between a controller and a programmable logic Unit. (4 Marks)

## PART B (ANY TWO)

### QUESTION TWO (20 MARKS)

- a) Describe at least FIVE categories of domain-specific languages. (10 Marks)
- b) Clearly describe the steps in the Domain-specific Languages Methodology.(10 Marks)

### QUESTION THREE (20 MARKS)

- a) Kiriri Women University of Science and Technology intends to develop a system for online course registration for their students. Using a use case diagram, clearly illustrate this functionality. (8 Marks)
- b) Explain the basic steps of Microcontroller programming. (6 Marks)
- c) Explain the three levels of programming languages. (6 Marks)

### QUESTION FOUR (20 MARKS)

- a) Explain FOUR advantages of assembly language. (8 Marks)
- b) Given the following 8085 microcontroller assembly language line:  
TESTLABEL: MOV A, 24H ; THIS IS A SAMPLE COMMENT,  
List and explain the different fields. (6 Marks)
- c) Given the following AVR assembly code, write the corresponding C program. (6 Marks)

```
; This is an AVR assembly code
.include "m8515def.inc"
.org $00

        ADD     R16, R17      ; Add value in R16 to value in R17
        DEC     R17          ; Minus 1 from the value contained in R17
        MOV     R18, R16     ; Copy the value in R16 to R18
END:     JMP     END         ; Jump to the label END
```

### QUESTION FIVE (20 MARKS)

- a) Explain the web services architecture (components of a web services). (6 Marks)

b) Pacifica learns a cloth selling business. She accepts cash/ cash as well as credit card as mode of payment from her customers. Using business process modeling notation, illustrate the process of purchasing a cloth from Pacifica. Explain your illustration.

(10 Marks)

c) Differentiate between homogenous and heterogeneous internal domain specific language.

(4 Marks)