



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SPECIAL / SUPPLEMENTARY EXAMINATIONS FOR

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

SIT104: VISUAL BASIC PROGRAMMING

DATE: 29/8/2022

TIME: 8.30-10.30 AM

INSTRUCTIONS:

This paper consists of FIVE questions

*Answer **question one** and other **two questions** in this paper*

1. (a) (i) Describe each of the following components of the Visual Basic Integrated Development Environment.
 - I. ToolBox;
 - II. Form designer. (4 marks)
- (ii) John, a program prefers to use Visual Basic programming language to create applications. Outline **three** features of Visual Basic language that could have led to this preference. (3 marks)
- (b) (i) Describe each of the following Visual Basic objects:
 - I. Picture Box;
 - II. Vertical ScrollBar;
 - III. Shape. (6 marks)
- (ii) Distinguish between *explicit* and *implicit* variable declaration as used in Visual Basic programming. (4 marks)
- (c) (i) State the prefix associated with each of the following Visual Basic controls:
 - I. CommandButton;
 - II. TextBox;
 - III. Label;
 - IV. ListBox. (2 marks)

- (ii) Describe each of the following types of procedures:
- I. Event procedure;
 - II. Property procedure. (4 marks)
- (d) Write a Visual Basic program that would prompt a user to enter either a rectangle or a circle. The program then prompts the user to enter the dimensions of the selected figure and then computes and outputs the area using a function. All the entries are through input box and the output is through a message box. (7 marks)
2. (a) (i) State whether or not each of the following terms are valid Visual Basic variables:
- II. County//
 - III. Student_Name
 - IV. String (4 marks)
- (ii) Assuming Visual Basic programming language, state the order of execution of the following statement.
- $$Y = X^3 + Y - A * (B / C)$$
- (2 marks)
- (b) (i) Write the output generated by each of the following Visual Basic string functions.
- I. Len(Machakos University)
 - II. Trim(Valentine) (2 marks)
- (ii) Write the output generated when the following Visual Basic statement is executed:
- $$A = sgr(B) \text{ given that } B = 16$$
- (2 marks)
- (c) Distinguish between *local* and *static* variables as used in Visual Basic programs. (4 marks)
- (d) Write a Visual Basic program that will generate the following output on a form.
- The value of a is: 10
The value of a is: 15
The value of a is: 20 (6 marks)
3. (a) (i) Explain the term user defined data type as used in programming. (2 marks)
- (ii) Create a data type that would be able to store a product details that include productID, productName, quantity and price in a visual basic program. (4 marks)

(b) (i) Explain two methods used to connect a Visual Basic program to a database. (4 marks)

(ii) Describe **two** components that are necessary for the creation of a Visual Basic report. (4 marks)

(c) A program prompts a user to enter the number of students in a lecture room. The program then prompts a student to the fee paid in the semester. A message “You have cleared” is displayed when a student has paid all the fee, otherwise a message “You have not cleared” is displayed.

Draw a flow chart that could be used to implement the program logic. (6 marks)

4. (a) (i) Outline **three** data types other than integer used in Visual Basic programming language. (3 marks)

(ii) Study the following Visual Basic program code and then answer the question that follows:

```
Private Sub cmdResults_Click()  
Dim Num1, Num2, Num3, Num4 As Integer  
Num1 = (InputBox("Enter an Integer"))  
Num2 = (InputBox("Enter an Integer"))  
Num3 = Num1/Num2  
Num4 = Num1 mod Num2  
Print Num3  
Print Num4  
End Sub
```

State the output generated given that Num1 = 10 and Num = 5 (4 marks)

(b) (i) Construct a truth table for the AND logical operator. (4 marks)

(ii) Represent the *while..loop* in a flow chart segment. (3 marks)

(c) Mashinani University allows applicants to apply for courses online. The application form consists of a label, a text box, option buttons, combobox and a command button.

The label is placed next to the text box to identify it, the applicant types his/her name in the textbox, selects the appropriate option for the gender and then selects a course through the combo box. The information is then submitted by clicking the command button.

Assuming Visual Basic programming language environment, sketch the interface that could be used to implement this logic. (6 marks)

5. (a) Sketch the output generated when the following Visual Basic statement is executed. (3 marks)

```
RegNo = InputBox ("Enter the registration number", "Reg Number",  
xxxx)
```

- (b) Write a Visual Basic program that would generate the following output on a form.

50 60 70

50 60

50

Attach the code to a command button. (4 marks)

- (c) Distinguish between *do while.. loop* and *do.. loop while* iteration statements as used in Visual Basic programs. (4 marks)

- (d) (i) Outline **three** functions used to handle errors in Visual Basic programming. (3 marks)

(ii) Explain **three** types of errors that could be encountered in programming. (6 marks)