



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO202: EVENT DRIVEN PROGRAMMING

DATE: 17/12/2021

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

This paper consists of FIVE questions

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

1. (a) (i) Briefly explain the meaning of the following terminologies as used in Event Driven Programming. (6 marks)
 - I) Event
 - II) Event handler
 - III) Method
- (ii) You have been hired as a consultant to advice on a project. Outline **FOUR** salient features VB.Net possesses that would make you recommend use of Event Driven Programming language for the project (4 marks)
- (b) (i) Describe each of the following components of VB.Net Integrated Development Environment (IDE) objects:
 - I. Form Layout Window
 - II. Properties Window (4 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. General Procedures
- (4 marks)
- (d) Write a VB.Net program that would prompt a user to enter either a triangle or a rectangle. 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. (6 marks)
2. (a) (i) State, giving reason, whether or not each of the following is a valid VB.Net identifier:
- I. AddressOf
 - II. 47County
 - III. Student_Name
 - IV. String
- (4 marks)
- (b) Explain the use of each of the following functions in VB (4 marks)
- (i) *Val*
 - (ii) *Ucase*
 - (iii) *Str*
 - (iv) *Len*
- (c) Distinguish between *local* and *static* variables as used in Visual Basic programs. (4 marks)
- (d) A program is required that will enable the user to calculate the sum, product and division of two numbers entered through text-box controls after a click of responsive button. The results are displayed in a Text-box control and upon the click of a second button, the user may clear the text-box controls content ready for next input. Required:
- i) Sketch a suitable graphical user interface assigning appropriate property values to your form and other controls (2 marks)
 - ii) Write the code for each of the buttons, declaring your variables appropriately (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 details of a product 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 the concept of the scope of variable in VB with respect to the use of the keywords Dim and Private (4 marks)
- (c) Using *Select..case* write a VB.Net program that allows a user to input scores in a text box. When the user clicks on a command button, the program should then display a grade in a second text box, using the information below. (6 marks)

SCORE	GRADE
80-100	Excellent
60-79	Good
45-59	Average
Below 45	Fail
Any other score	Invalid number, please enter the score again

4. (a) (i) Highlight **THREE** main events in VB, indicating the action taken when each of the events occurs. (3 marks)
- (ii) Study the following Visual Basic program code and then answer the question that follows:
- ```
Private Sub cmdResults_Click()
Dim Num1, Num2, AverageNum, ModNum As Integer
Num1 = (InputBox("Enter an Integer"))
Num2 = (InputBox("Enter an Integer"))
AverageNum= Num1/Num2
ModNum = Num1 mod Num2
Print AverageNum
Print ModNum
End Sub
```
- State the output generated given that Num1 = 10 and Num2 = 5 (4 marks)
- (b) (i) Write a VB event handler to generate and display the integers 1 to 10 in an implementation of a FOR...NEXT repetitive structure (4 marks)
- (ii) Explain briefly the TWO main types of constants found in Visual Basic (3 marks)
- (c) Write a VB code program to read of two dimensional array A(3,4) on a column by column. Print the value and position of each element (6 marks)
5. (a) State the most appropriate VB data type for a variable that stores the following values, giving a reason for each of your choices. (3 marks)
- A university student registration number
  - Amount of money a student paid as fees
  - Student's gender
- (b) Describe two types of container objects used in VB (4 marks)
- (c) Describe two ways in which a message box may be used in VB program (4 marks)
- (d) (i) Outline **three** functions used to handle errors in Visual Basic programming. (3 marks)
- (ii) Write a VB event procedure on a button that accepts the radius of a circle via a text box control and invokes/calls a function procedure to calculate the area of the circle, which is finally displayed in a second text-box control (Area of Circle =  $\text{Pi} \times \text{R} \times \text{R}$ ) (6 marks)