

SCAN

Name _____

Index No. _____ / _____

2920/205
VISUAL PROGRAMMING
July 2013
Time: 3 hours

Candidate's Signature _____

Date _____



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
MODULE II

VISUAL PROGRAMMING

3 hours

INSTRUCTIONS TO CANDIDATES:

Write your *name* and *index number* in the spaces provided above.
Sign and write the *date of examination* in the spaces provided above.
Answer any *FIVE* of the following *EIGHT* questions.

For Examiner's Use Only.

Question	1	2	3	4	5	6	7	8	Total
Mark									

This paper consists of 18 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

1. (a) Explain the effect of setting MDIchild property to *true* in Visual programming. (2 marks)

- (b) Assuming that the company you work for has asked you to identify a programming software to develop a payroll system. State **three** likely reasons that would lead you to chose Visual Programming language. (3 marks)

- (c) Under what circumstance would each of the following errors occur in Visual Basic programming;

(i) syntax errors; (2 marks)

(ii) run-time errors; (2 marks)

(iii) logic errors. (2 marks)

- (d) The three sides of a triangle having the dimensions a, b and c, must satisfy the following two conditions:

- All the three side lengths must be positive;
- the sum of any two side lengths must be greater than the third side length i.e. $(a+b) > c$, $(a+c) > b$ and $(b+c) > a$

Write a visual basic program that captures the three sides of a triangle by way of three text boxes, test the two conditions and return an appropriate message if any of the conditions is invalid. The program should then use a function and the dimensions to calculate the area of the triangle and then display on a form. Attach the code to a command button click event.

Hint: The area of the triangle is given by the formula:

$$area = \sqrt{s(s-a)(s-b)(s-c)} \text{ where } s = \frac{a+b+c}{2} \quad (9 \text{ marks})$$

Lined area for writing answers to previous questions.

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2. (a) (i) Outline **three** hardware considerations to make when installing visual programming software. (3 marks)

Lined area for writing the answer to question 2(a)(i).

- (ii) Distinguish between *single document interface* (SDI) application and *multiple document interfaces* (MDI) application as used in Visual programming. (4 marks)

- (b) (i) Outline **two** properties that must be set on a *text box* in order to manipulate data in a database when programming in Visual Basic. (2 marks)

- (ii) Explain **two** disadvantages of using Data control bounds in Visual Basic programming. (4 marks)

- (c) The following is a Visual Basic program. Use it to answer the question that follows.

```
Private Sub Command1_Click()  
Dim X As Integer, Y As String  
X = 0  
Do  
    Print X,  
    Y = Fcn(X)  
    Print Y  
    X = X + 1  
Loop While X <= 10  
End Sub  
  
Function Fcn(X As Integer) As String  
Dim remaind  
remaind = X Mod 2  
If remaind = 0 Then  
    Fcn = "odd"  
Else  
    Fcn = "even"  
End If  
End Function
```

Determine the output from the program.

(3 marks)

- (d) Distinguish between *Do...while* and *Do...until* loop as used in Visual Basic programming.

(4 marks)

3. (a) John an ICT student developed an application using Visual Basic and while connecting it to a database file created using Microsoft Access he got the following error message.



Explain the possible cause of this error. (2 marks)

- (b) (i) Define each of the following terms as used in Visual Basic programming.

I. compiling; (1 mark)

II. debugging; (1 mark)

III. execution. (1 mark)

- (ii) Distinguish between a *ListBox* control and *DriveListBox* control as used in Visual programming. (4 marks)

- (c) Figure 1 shows a visual basic menu editor dialog box for creating pull down menus in an application. Use it to answer the question that follows.



Figure 1

Outline the procedure of creating the following menu using the menu editor.

File

Open Ctr+O

Edit

Copy Ctr+C

(5 marks)

- (d) Write a Visual Basic program that would determine the sum of squares of numbers from 10 to 30. The program should then display the *numbers*, their *squares* and *cumulative sum* of the squares on a picture box Use Do while loop and attach the code to command button click event. (6 marks)

4. (a) Identify a data type appropriate to store each of the following data items in Visual Basic program:

(i) gender where a true or false values are used; (1 mark)

(ii) number of students in each technical training institution in the country; (1 mark)

(iii) The distance between two towns in kilometre rounded to 1 decimal place. (1 mark)

(b) Explain **two** ways of setting properties of an object in a Visual Basic program. (4 marks)

(c) Write a Visual Basic program that prompts a user to enter a string value by way of an inputbox function and searches for a string value in a field named *studnames* in a database table linked by the use an ADO control. The program should display the message "The string exist" or "The string does not exist" depending on the outcome of the search using a message box. Attach the code to a command button click event. (6 marks)



(d) Table 1 shows a grading system used by a primary school to analyse students internal examination results. Use it to answer the question that follows.

Average	Grade
75 - 100	A
65 - 74	B
55 - 64	C
45 - 54	D
Less than 45	F

Table 1

Write a Visual Basic program that accepts five values through the use of inputbox function. The program should then determine the average and its appropriate grade. The average and grade should be displayed on a form. Use *select case*. (7 marks)



5. (a) Distinguish between a *general procedure* and an *event procedure* as used in Visual programming, giving the syntax in each case. (6 marks)

- (b) A database has a table with the following fields; *Studnames*, *Studclass*, *StudAdno*. Write a Visual Basic program segment that would be used to access the field values from the database given that it is linked using of data control. The program should assign the values to the variables named; *strNames*, *strClass* and *SngAdno* respectively. The program should then display the three values using a picture box. (5 marks)



- (c) Figure 2 shows the output from a message box function in a Visual Basic program. Identify the arguments responsible for the output of each of the parts labelled (i) to (iv). (4 marks)

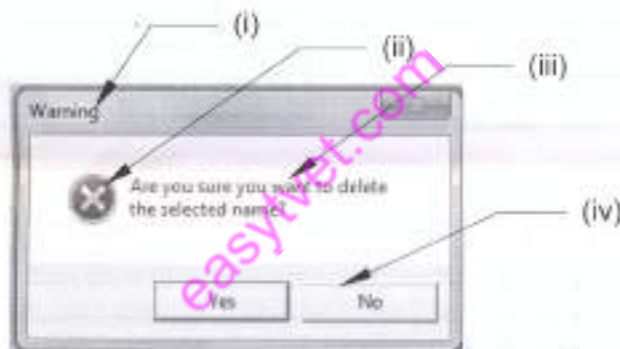
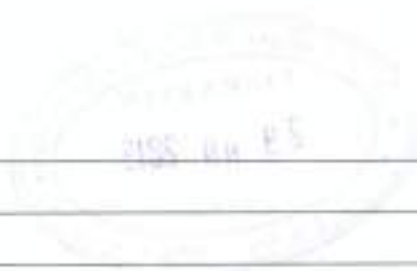


Figure 2

- (d) Write a Visual Basic program that uses a procedure to accept ten names entered sequentially through an InputBox. The program should then transfer the values to an array named *studentName* and display the items on a list box. (5 marks)



6. (a) Express each of the following mathematical expression in its Visual Basic statement equivalent.

(i) $\frac{4 \times 5 + 14}{8 + 4}$ (2 marks)

(ii) $\sqrt{4.3 \times 2^3}$ (2 marks)

(b) Identify the errors in each of the following Visual Basic program segments.

(i) `x = 2`
`y = 3`
`x+y = z`
`'display the output of Z using a Picture box.`
`picOutput.Print "z"` (2 marks)

(ii) `balance = 200,000`
`Deposit = ksh.50000`
`picOutput.Print balance + deposit` (2 marks)

- (c) Figure 3 shows a flow chart used to solve a mathematical problem. Use it to answer the questions that follow.

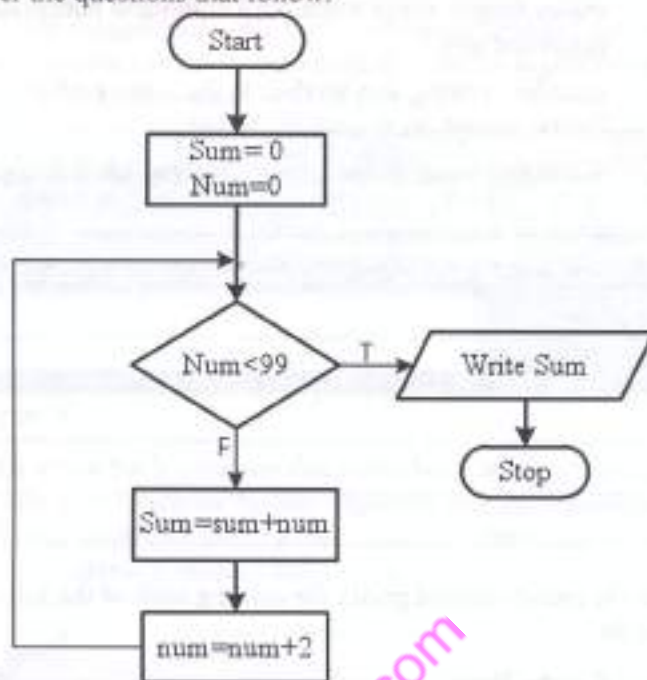


Figure 3

- (i) State a circumstance under which the loop control structure in the flow chart would be used. (2 marks)

- (ii) Convert the flow chart to its Visual Basic program equivalent to solve the problem. Use the appropriate controls and attach the code to a command button click event. (6 marks)

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- (d) Mary would like to write a Visual Basic program that:
- (i) erases listbox items when the a command button named *cmdGoAway* is clicked and
 - (ii) transfers a string in a textbox to the listbox when a second command button named *cmdInsert* is clicked.
- Write **two** event procedures to accomplish this objective. (4 marks)

7. (a) State the recommended prefix for naming each of the following Visual Basic controls.
- (i) Combo Box; (1 mark)

 - (ii) Form; (1 mark)

 - (iii) Picture Box; (1 mark)

- (b) Explain each of the following terms as used in a Visual Basic Program.
- (i) RecordSet; (2 marks)

 - (ii) DataSource; (2 marks)

 - (iii) BOFAction. (2 marks)

(c) To be eligible to vote in a polling station, an individual should meet the following requirements.

- Be a Kenyan citizen,
- Be above 18 years of age
- Be a registered voter in the station seeking to vote from.

Figure 4 shows a window used to determine the eligibility of a voter by the use of the three checkboxes.



Figure 4

Write a visual basic program that uses check boxes to capture the three status of a voter and determine his/her eligibility to vote. Appropriate message should then be displayed on a label. Use *If.. Then* construct and attach the code to a command button click event. (4 marks)

```


Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
    ' Your code here
End Sub


```

(d) (i) With the aid of an example, distinguish between *dynamic array* and *static array* as used in Visual Programming language. (4 marks)

```


;


```

- (ii) Outline **three** ways in which one can respond to an error using error handler section of a procedure. (3 marks)

- 8 (a) (i) Explain the term *event driven programming languages*. (2 marks)

- (ii) List **four** components that constitute Visual Basic Integrated Development Environment (IDE). (2 marks)

- (b) With the aid of an example in each case, explain **two** ways of concatenating two strings in Visual Basic program. (4 marks)

- (c) Write a Visual Basic program that uses a procedure to display the following list on a picture box.

123456
12345
1234
123
12
1

(6 marks)

- (d) (i) List **two** ways of generating a report in a Visual Basic Program. (2 marks)

- (ii) Write a Visual basic program that prompts a user to enter *Surname*, *age* and *gender* values from two text boxes and an option button respectively. The program then transfers the values into a database table having fields named; *Snames*, *age*, *gender* in a database connected using ADO control. Attach the code to a command button click event. (4 marks)
