2920/205
Visual Programming
November 2022
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

MODULE II

VISUAL PROGRAMMING

3 hours

INSTRUCTIONS TO CANDIDATES

*This paper consists of **EIGHT** questions*
*Answer any **FIVE** of the **EIGHT** questions in the answer booklet provided.*
Candidate should answer the questions in English.

This paper consists of 7 printed pages.

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

Turn over

1. (a) Outline the function of each of the following tool box features in a Visual Basic program:

   (i) pointer;

   (ii) frame;

   (iii) ole. (3 marks)

   (b) Explain each of the following statements used in error trapping in a Visual Basic program:

   (i) On Error Goto label;

   (ii) On Error Resume Next;

   (iii) On Error Goto 0. (6 marks)

   (c) Explain the function of each of the following IDE interface of a Visual Basic program:

   (i) Form Window;

   (ii) Property Window;

   (iii) Form Layout window. (6 marks)

   (d) Write a Visual Basic program that would accept a character through the use of a text box. The program should then change the background colour of the current form based on the captured character colour criteria shown in Table 1. Use If...Then...Else statement and attach the code to a command button. (5 marks)

Character	Form Colour
R	Red
G	Green
B	Blue
Y	Yellow
any other letter	not valid colour

   Table 1.

2. (a) State the Visual Basic *type conversion functions* used to convert a string into each of the following types of data:

   (i) Boolean data;

   (ii) Currency data;

   (iii) Date data;

   (iv) Integer data. (4 marks)

   (b) State a circumstance that necessitates the use of each of the following statements in a Visual Basic program:

   (i) Option Explicit;

   (ii) With...End With. (4 marks)

(c) Distinguish between the *Do While...Loop* and *Do...Loop While* statements as used in Visual Basic program. Give a syntax in each case. (6 marks)

(d) The vertical height (h) in metres of a particle projected vertically upwards with an initial velocity 100 m/s with respect to time (t) is obtained using the formula $h = 100t + 4.9t^2$.

Write a Visual Basic program that prompts a user to enter the time (t) using input box function. The program should then use a function to compute the height in metres and display the results in a picture box. Attach the code to a command button. (6 marks)

3. (a) Outline **four** methods used in a form in a Visual Basic program. (4 marks)

(b) State **two** differences between an *argument* and a *parameter* as used in a Visual Basic program. (4 marks)

(c) Explain the function of each of the following data report controls in a Visual Basic program:

(i) rptlabel;

(ii) rptfunction. (4 marks)

(d) Figure 1 shows a Visual Basic form with a data control named *dtaPhonebook* used to access a phone book database. Use it to answer the question that follows.

Figure 1

Write a Visual Basic program for the delete event that should be able to check the existence of a record and then delete it from a database. The program should display appropriate messages and corresponding icons. (8 marks)

4. (a) Explain **two** properties of a text box control that must be set to enable it interact with a database file in a Visual Basic program. (4 marks)

(b) Outline the function of each of the following *datagrid properties* in a Visual Basic program.

(i) AllowArrows;

(ii) AllowDelete;

(iii) ColumnHeaders;

(iv) HeadLines. (4 marks)

(c) State a circumstance under which each of the following statements are used in a Visual Basic program:

(i) ReDim;

(ii) Option base;

(iii) Preserve. (6 marks)

(d) Total sale made in a period of 5 years is required to be computed. Write a Visual Basic program that would capture each annual sale value in a text box and assign the values to an array. The program should then use the values in the array to compute the total sale and display the results on a label. Attach the code to a command button. (6 marks)

5. (a) Outline the function of each of the following methods of a recordset as used in a Visual Basic program:

(i) synchronize;

(ii) rowstatus;

(iii) edit;

(iv) update. (4 marks)

(b) (i) Explain the term *function call* as used in Visual Basic programming language. (2 marks)

(ii) Classify each of the following Visual Basic operators as either Assignment Operators, or Comparison Operators or Arithmetic Operators.

^   <>   Mod   IsNot   *= (3 marks)

(c) Explain the function of the following features in a menu editor of a Visual Basic program.

(i) separator bars;

(ii) access keys;

(iii) shortcut keys. (6 marks)

(d) Figure 2 shows a form designed in a Visual Basic program used to capture the preferred destination sites in Kenya by a tourist. Use it to answer the question that follows.

Figure 2

Write a Visual Basic program that uses *control array check boxes* for site options. When a user clicks a command button, the text "Karibu Kenya" appears as the title and selected destination sites are displayed on the list box. (5 marks)

6.   (a)   Outline **four** controls that may enable a user to make a choice from a list of data in a Visual Basic program. (4 marks)

(b)   Explain a circumstance under which each of the following methods may be used to retrieve data in a Visual Basic program.

(i)   snapshot data object;

(ii)   database data object. (4 marks)

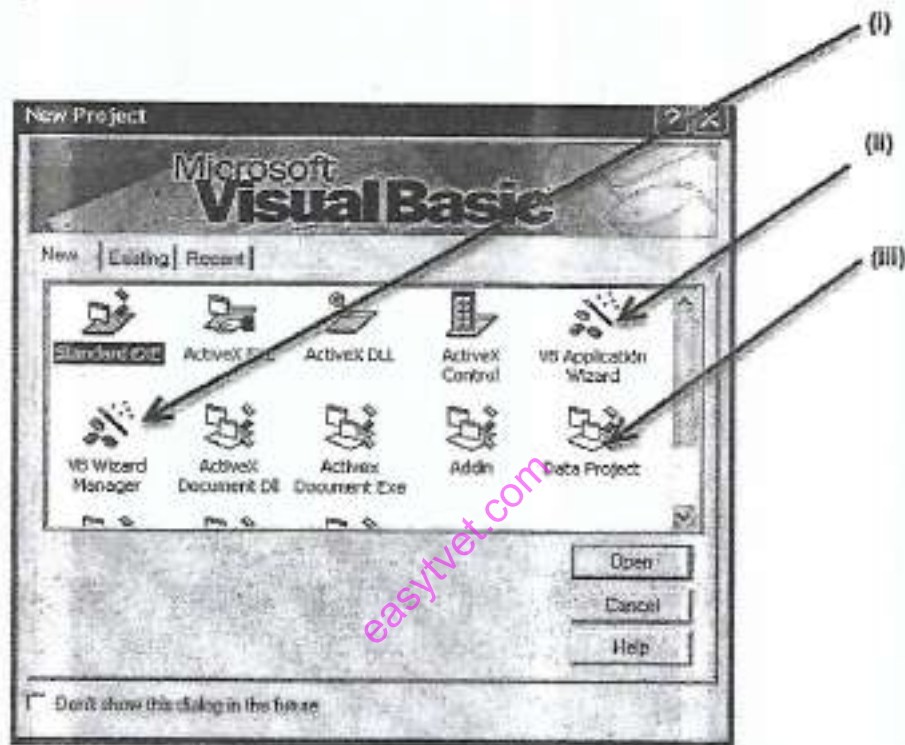(c)   Figure 3 shows a start-up window of a Visual Basic program. Use it to answer the question that follows.

Figure 3

Explain the function of each of the options labelled (i), (ii) and (iii). (6 marks)

(d)   Table 2 shows the rates used to award commission to workers based on the sales made by each salesperson. Use it to answer the question that follows.

Sales (in Ksh)	Commission Rate
Less than 10,000	5%
Greater or equal to 10,000 and less than 20,000	10%
Greater or equal to 20,000 and less than 30,000	20%
Greater or equal to 30000	30%
Other value	Invalid Value

Table 2

Write a Visual Basic program that would accept the sale through the use of an input box. The program should then compute the commission and output the results in a message box. Use *select case* control structure and attach the code to a command button. (6 marks)

7. (a) Explain a circumstance that may necessitate the occurrence of each of the following errors in a Visual Basic program:

(i) Overflow;

(ii) Object required;

(iii) Property set not permitted. (6 marks)

(b) Study the following Visual Basic program and use it to answer the questions that follow.

```
Private Sub Command1_Click()
Dim x As Integer
Dim word As String, erufi As String
word = "MALAIKA"
    For x = 1 To Len(word)        ←————(i)
        erufi = Right(word, x)    ←————(ii)
        Picture1.Print erufi
    Next x
End Sub
```

(i) Interpret each of the statements labelled (i) and (ii) in the program. (4 marks)

(ii) State the expected output in the picture box control named picture1 in the program. (3 marks)

(c) Write a Visual Basic program that uses dynamic array to store values entered through the use of an input box function. If a negative number is entered, it is stored and the program terminates. Use *Do...Loop While* and attach the code to a command button. (7 marks)

8. (a) Outline **four** uses of the data manager in a Visual Basic program. (4 marks)
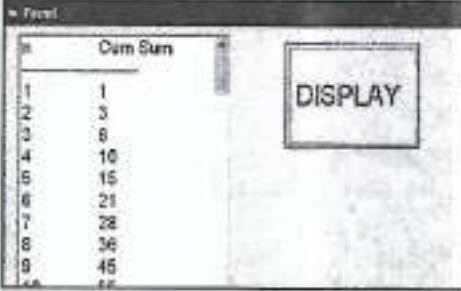
(b) Distinguish between *step over* and *step into* as used in Visual Basic programming language. (4 marks)

(c) Explain a circumstance under which each of the following Visual Basic program features would be used:

(i) immediate window;

(ii) quick watch;

(iii) watch windows. (6 marks)

(d)   The following is a run time extract of a Visual Basic program used to display cumulative sum of integers from 1 to 100. Write a Visual Basic program to display t̲ output as it appears in figure 4. Use *Do...loop* and use the tab function to separate columns.

(6 ma

Figure 4

THIS IS THE LAST PRINTED PAGE.