

2920/205

VISUAL PROGRAMMING

July 2019

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 FIVE of the EIGHT question in the answer booklet provided.

All questions carry equal marks.

Candidates should answer the questions in English.

This paper consists of 6 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) Outline a circumstance under which each of the following controls may be used in a Visual Basic program.
- (i) Timer;
 - (ii) PictureBox;
 - (iii) Checkbox. (3 marks)
- (b) Explain the function of each of the following in a Visual Basic Integrated Development Environment.
- (i) Menu bar;
 - (ii) Object browser;
 - (iii) Form layout window. (6 marks)
- (c) Distinguish between *caption* and *name* properties as used in a Visual Basic Program. (4 marks)
- (d) Write a program in Visual Basic that uses functions to generate acceptable remarks based on the average score that a student obtains in an examination as shown in Table 1. The program should display the remarks on a label. Use select case statement. Attach the program to a command button. (7 marks)

Table 1

Average Score	Remarks
From 0 to 299	Mean below average
From 200 to 299	Average mean
From 300 to 399	Good mean
From 400 to 499	Excellent mean
Any value	Illegal entry

- 2 (a) Outline the function of each of the following properties of a form.
- (i) borderstyle;
 - (ii) windowstate;
 - (iii) backcolour. (3 marks)
- (b) With the aid of an example in each case, distinguish between a *method* and an *event* as used in a Visual Basic Program. (4 marks)

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

```
On Error { GoTo [ line | 0 | -1 ] | Resume Next }
```

↓
↓
↓
(i)
(ii)
(iii)

Explain the function of the part labelled (i), (ii) and (iii) when used in a program statement. (6 marks)

- (d) (i) Determine the output from each of the following Visual Basic logical statements. (2 marks)

I If (expression1) is true and (expression2) is true;

II If (expression1) is false or (expression2) is true.

- (ii) Write a program in Visual Basic that accepts the number x through the use of a textbox. If the value of the expression $x^3 - x$ is greater or equals to 100, the program displays the message "A big number!" on a label, otherwise output "A small number!". (5 marks)

- 3 (a) Outline **three** activities that can be done on the project window in a Visual Basic Program. (3 marks)

- (b) Explain each of the following terms as used in variable declarations in a Visual Basic Program. (6 marks)

(i) lifetime;

(ii) scope;

(iii) datatype.

- (c) Distinguish between `variablename = InputBox ("message")` and `variablename = Val (InputBox ("message "))` Statement as used in Visual Basic programming. (4 marks)

- (d) (i) Write a Visual Basic statement that would display the value 40976 formatted to each of the following:

I. date;

II. currency.

(2 marks)

- (ii) The length of the hypotenuse of a right-angle triangle is given by the formula $c = \sqrt{a^2 + b^2}$ where a and b are the perpendicular sides and c is the hypotenuse

Write a program in Visual Basic that would accept the values a and b through the use of a text box, compute the hypotenuse and display the results on a message box. (5 marks)

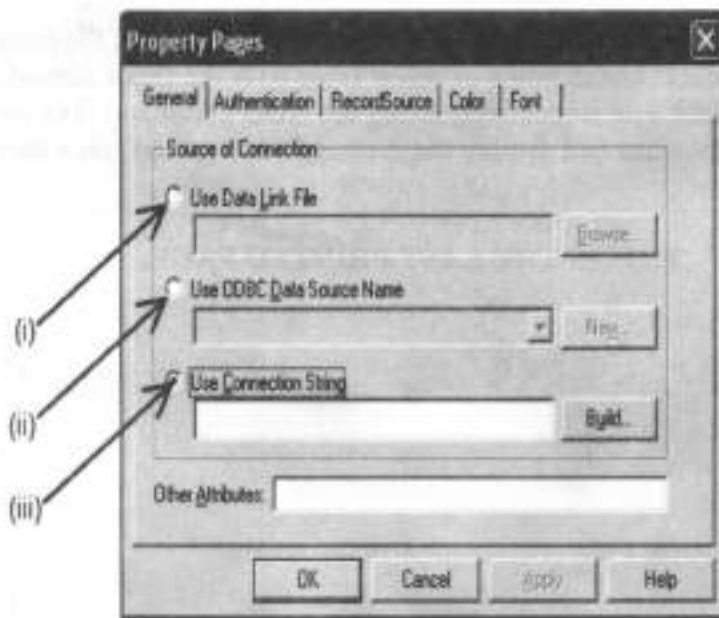
- 4 (a) Outline **four** methods of a list box as used in a Visual Basic program. (4 marks)
- (b) Distinguish between *on error go to 0* and *on error go to -1* statements in a Visual Basic program. (4 marks)
- (c) Explain the reasons for applying each of the following in an array in a Visual Basic program. (6 marks)
- (i) Control array;
 - (ii) Array bound;
 - (iii) Redim statement.
- (d) Write a program in Visual Basic with a label and text box named *label1* and *Text1* respectively that uses a procedure to performs the following sequence of events when the command button is clicked. Use *with* statements. (6 marks)
- TextBox1 is disabled;
 - The background colour of TextBox1 becomes yellow;
 - Label1 becomes visible;
 - Text on the label to have a blue colour;
 - The font of text on the label to be bold.
- 5 (a) State the correct data type in Visual Basic programming for each of the following description of statements. (4 marks)
- (i) The height of a student (in cm);
 - (ii) The number of children in a class;
 - (iii) The academic grade of a student;
 - (iv) Country status whether poor or rich.
- (b) Ali a programmer created a Visual Basic program and ran it in his computer, he observed the error "object not found" displayed on the screen. Explain **two** causes of this error. (4 marks)

- (c) Explain each of the following as used in data structures: (6 marks)
- (i) bubble sort;
 - (ii) binary search;
 - (iii) Tree traversal.
- (d) Write a program in Visual Basic that would display the following pattern on a picturebox: (6 marks)

```

1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
    
```

- 6 (a) Outline **three** ways in which a project can be started in a Visual Basic program window. (3 marks)
- (b) Distinguish between *adcmdtext* and *adcmdtable* values as used ADO Data controls in a Visual Basic Program. (4 marks)
- (c) Figure 1 shows a dialog box used to prompt one to choose one the three mechanisms for connecting to a database.



Explain the circumstance that may lead one to use each of the options labelled (i), (ii) and (iii). (6 marks)

- (d) Write a program in Visual Basic that would compute the summation of integers from 20 to 50 and display the results on a label. Use a *For* loop statement. (7 marks)
- 7 (a) Outline **four** events of an ADO Data control as used in Visual Basic Programming. (4 marks)
- (b) Distinguish between *public* and *local* array declaration in a Visual Basic program. (4 marks)
- (c) Describe the **two** properties to be set on a textbox in order to display data from a database in Visual Basic. (4 marks)
- (d) Write a program in Visual Basic that accepts a name and a score of six students in a test through the use of an inputbox(). The program should then display the names scores and the average scores on a picture box. Attach the code to a command button. (8 marks)
- 8 (a) Distinguish between a *listbox* and a *combobox* as used in Visual Basic. (4 marks)
- (b) Write an algorithm to implement each of the following in a stack data structures: (6 marks)
- (i) Check if it is full;
- (ii) Add an element.
- (c) Eric a programmer intends to create an application in Visual Basic program and would like to connect a database to bound controls on the forms. Describe **two** controls that would help him achieve his goal. (4 marks)
- (d) Write a program in Visual Basic that on command button click, the program add the values from three text boxes into a database table with the fields named, *AdNo*, *StudName* and *StudClass* respectively using the ADO command. The program should then update the database and display the message "data added" on a messagebox (). (6 marks)

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