

2920/205
VISUAL PROGRAMMING
July 2018
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
MODULE II
VISUAL PROGRAMMING
3 hours

INSTRUCTION TO CANDIDATES

*This paper consists of EIGHT questions.
Answer any FIVE of the following EIGHT questions in the answer booklet provided.
All questions carry equal marks.
Candidates should answer the questions in English*

This paper consists of 5 printed pages.

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

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Turn over

1. (a) State a toolbox control that would be used to perform each of the following in a Visual Basic program.
- (i) Select an object placed on a form;
 - (ii) Hold pictures created in art packages;
 - (iii) Drawing a circle;
 - (iv) Display bar on a form. (2 marks)
- (b) Distinguish between *image* and *ole* controls as used in a Visual Basic program. (4 marks)
- (c) (i) Describe a *user defined function* as used in programming. (2 marks)
- (ii) With the aid of an example in each case, explain the function of the following string function statements as used in a Visual Basic program.
- (I) Right ();
 - (II) Ltrim();
 - (III) Mid (). (6 marks)
- (d) Write a program in Visual Basic that would allow a user to enter a string through the use of an inputbox function. The program should then display; the string on a listbox control and the total number of items entered in a listbox on a label. Attach the code to a command button. (6 marks)

private sub button_click ()
Dim s as string

2. (a) Outline the function of each of the following of label properties in a Visual Basic program.
- (i) Caption;
 - (ii) Name;
 - (iii) Palette. (3 marks)
- (b) Write a program in Visual Basic that would activate a form to appear for only four seconds. Attach the code to a time event. (4 marks)
- (c) Explain a circumstance that could make a programmer to use each of the following debugging tools in a Visual basic program.
- (i) Immediate window;
 - (ii) Watch window; This is visualize how the program works after coding.
 - (iii) Local window. (6 marks)
- (d) Write a program in Visual Basic that allows a user to enter length and width of a rectangle through the use of a text boxes. The program should use a function to find the area of the rectangle. Attach the code to a command button. (7 marks)

private sub button2_click ()
Dim L, W as integer
function Area
Area = L * W
end function
str1 = inputbox("text")
Area = inputbox("text") (L * W)
Area = Int L * Int W (Int L * Int W)

3. (a) Explain the function of *menu control array* as used in a menu editors. (2 marks)
- (b) Distinguish between the *drivelistbox* and *dirlistbox* controls as used in a Visual Basic program. (4 marks)

(c) Write a program in Visual Basic programming language that would calculate the volume of a cuboid given that the height is 20, length is 45 and the width is 35. The program should then display the results on the form. Attach the code to a command button click event. (5 marks)

Private sub button_click
 Dim h, l, w as integer
 function volume
 volume = l * w * h

(d) Ali a programming student would like to write a program that would pass 10 values into an array.

- (i) State the declaration statement for the array. $a[1, 10]$ (1 mark)
- (ii) State the most appropriate iteration statement for the program giving a reason for your answer. (2 marks)
- (iii) In case he wants to increase the number of values at run time from 10 to 30. State the Visual Basic statement that would help him achieve his goal. (2 marks)
- (iv) Explain **two** reasons that could make Ali to use dynamic arrays in his program. (4 marks)

4. (a) Outline **three** characteristics of a Visual Programming Language. (3 marks)

- (b) Explain each of the following terms as used in database connection. (6 marks)
- (i) Database engine;
 - (ii) Database control;
 - (iii) Recordset.

(c) Distinguish between a *two dimensional array* and a *control array* as used in a Visual Basic program. (4 marks)

(d) Table 1 show a criteria used by a member's club to award discount to its clients. The entry fee is Kshs 1000 per head. Use it to answer the question that follows.

Age	Status	Discount
1 - 10	junior	4.5
11-18	Senior	2.5
19 -30	Adult	1.5
Above 30	Not allowed in the club	

Write a program in Visual Basic programming language that would accept the age of a member and the status of a member through text boxes. The program should then compute the discount allowed and display the status and the discount on a form. Use an *If statement*. (7 marks)

Private sub button_click
 Dim age as integer
 Dim status as string
 Dim discount as double
 x = InputBox("Age")
 y = InputBox("Status")
 If x > 10 then
 status = "Not allowed in the club"
 Else
 discount = 4.5
 If y = "junior" then
 discount = 4.5
 If y = "Senior" then
 discount = 2.5
 If y = "Adult" then
 discount = 1.5
 End if
 End if
 End if

- 5/ (a) (i) Describe the term *data aware control* as used in Visual Basic. (2 marks)
- (ii) Outline **four** data aware control tools in a Visual basic program. (4 marks)

(b) State **three** differences between *sub procedure* and *function procedure* as used in a Visual Basic program. (6 marks)

- Fct. = temporary & local - function
- Can be called in program always

(c) Write a program in Visual Basic programming language that accepts an integer through an input box. The program then outputs the message "valid number" on a message box with an exclamation mark when the integer entered is less than five otherwise it outputs the message "invalid number" on a message box with an information icon. The message boxes should have Ok and Cancel options. (8 marks)

*Private Sub Button1_Click()
 Dim i As Integer
 i = InputBox("Enter a number")
 If i < 5 Then
 MsgBox("Valid Number", vbExclamation, "Valid")
 Else
 MsgBox("Invalid Number", vbInformation, "Invalid")
 End If*

(a) State the recommended prefix for each of the following datatypes in a Visual Basic program.

- (i) Boolean; *Bool*
- (ii) Variant; *Var*
- (iii) Single; *Int*
- (iv) Date; *DTE*

*IF X 75
 MsgBox (Valid)
 No*

(b) Describe **three** characteristics of an object in a Visual Basic environment. (6 marks)

(c) Distinguish between *data grid* and *ms flex grid* as used in Visual Basic programming. (4 marks)

*1) Object in Visual Basic environment
 2) Object in Visual Basic environment
 are exactly same but one is control and other is not.*

(d) Write a program in Visual Basic that would copy all the elements in an array of size 10 to another array of the same size. The program should display the elements of both arrays alongside each other in a picture box. Attach the code to a command button click event. Use *for next loop*. (8 marks)

7. (a) Explain **two** functions of each of the following *menu editor* options in a Visual Basic program.

- (i) Checked;
- (ii) Enabled. *This enables*

(b) Describe each of the following sorting algorithms as used in programming.

- (i) Bubble;
- (ii) Shell;
- (iii) Merge.

(c) With the aid of an example, state the difference between an *index* and a *subscript* as used in an array. (4 marks)

*1, 2, 4
 5*

- (d) Write a program in Visual Basic programming language to display the following pattern on a form when the program is executed. Use *for ...next* loop. (6 marks)

```
*
* *
* * *
* * * *
* * * * *
```

8. (a) Outline **four** sections of report design in a Visual Basic program. (4 marks)
- (b) (i) Write a Visual Basic statement for performing each of the following:
- (I) move to the first record in a table attached to a data control named `dtaExample`;
 - (II) find a record with a data control named `dtaExample`;
 - (III) add a record with a data control named `dtaExample`. (3 marks)
- (ii) Anne would like to connect a form created in Visual Basic to a database using `datalistbox` properties. Describe **three** such properties that she would use. (6 marks)
- (c) The values 11 13 18 25 26 30 34 36 41 43 are stored in an array. Showing all the passes and steps, search for the item 63 using a binary search technique. (7 marks)

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