

2920/205

VISUAL PROGRAMMING

November 2018

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

MODULE II

VISUAL PROGRAMMING

3 hours

**INSTRUCTIONS TO CANDIDATES**

*This paper has 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 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.**

4. (a) Outline the function of each of the following properties of an ADO dialog box Data control:
- (i) CommandType; (1 mark)
  - (ii) UserName; (1 mark)
  - (iii) RecordSource. (1 mark)
- (b) With the aid of an example, explain each of the following operators as used in Visual Basic programming:
- (i) \ (2 marks)
  - (ii) ^ (2 marks)
  - (iii) Mod (2 marks)
- (c) State the difference between *properties* and *variables* as used in Visual Basic programming. *- property - a named attribute of a program* (4 marks)
- (d) Table 1 shows the criteria used by a lottery company to award prizes to players. The players present a random integer number. Any number other than those in the table do not attract a prize.

Winning Numbers	Prize (Ksh)
1 to 10	12,000
45 or 67 or 90	100,000
Greater or equal to 300	500

Table 1

Write a program in Visual Basic language that would allow a user to enter a random number in a textbox. The program should then display the prize amount on a message box. Use *select case* and attach the code to a command button. (7 marks)

5. (a) State a circumstance under which each of the following Visual Basic data types is used: (3 marks)
- (i) Byte;
  - (ii) Long;
  - (iii) Double.
- (b) In a Visual Basic Program, a variable X is assigned a value 25 and variable Y is assigned value 56. Determine the output generated by each of the following statements in the program:
- (i) NOT (X = Y) AND (Y < 30) (3 marks)
  - (ii) (X > 10) XOR ((Y - X) < 30) (3 marks)

- (c) Explain each of the following as used in a Visual Basic program.
- (i) ADO recordset object; (2 marks)
- (ii) ADO connection object. (2 marks)
- (d) Write a program in Visual Basic language that would be used to solve the following mathematical sequence for values of  $n$  and  $x$  each captured from respective text boxes. The results would be displayed on a picture box. Use *For...Next* loop and attach the code to a command button. (7 marks)

$$7 + \frac{1}{x} + \frac{2}{x^2} + \frac{3}{x^3} + \frac{4}{x^4} + \dots + \frac{n}{x^n}$$

- (a) (i) State **four** controls in a Visual Basic program language that allow a user to select a value from a predefined list during the run time. (2 marks)
- (ii) Outline **four** considerations to be taken before installing Visual Basic applications. (4 marks)
- (b) Distinguish between *unconditional loop* and *conditional loop* as used in programming. (4 marks)
- (c) State the meaning of each of the following debugging terms as used in Visual Basic programming: (4 marks)
- (i) Error Handlers;
- (ii) Breakpoints.
- (d) Table 2 shows English language greetings based on particular times of the day. Use it to answer the question that follows.

Greetings	Time of the day
Good morning	5 AM to 11:59 AM (05:00 to 11:59)
Good afternoon	12:00 PM to 5:59 PM (12:00 to 17:59)
Good evening	6 PM to 8:59 PM (18:00 to 20:59)
Good night:	9 PM onwards (after 21:00)

Table 2

Write a program in Visual Basic language that allows a user to enter the time in decimal form through an inputbox function. The program should then display the appropriate greetings on a message box. Use *if then elseif* construct and attach the code to a command button. (6 marks)

- \* (a) Explain a circumstance under which each the following controls is used in a Visual Basic program:
- (i) label; (2 marks)
  - (ii) option button. (2 marks)
- (b) Outline the function of each of the following features of a Visual Basic Program: (2 marks)
- (i) MS FlexGrid grid;
  - (ii) Visual Data Manager.
- (c) Figure 1 shows a properties windows for an ADO control used by a programmer in Visual Basic program. Use it to answer the questions that follow.

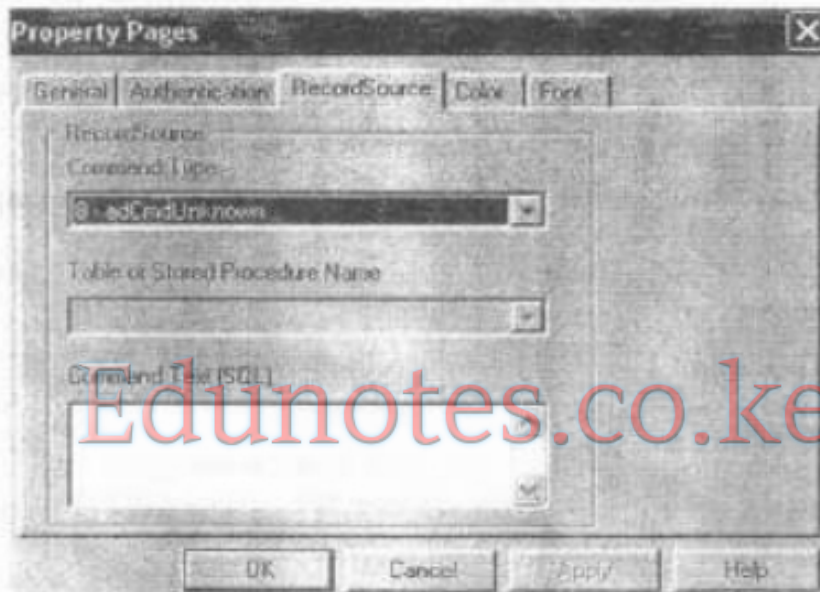


Figure 1

Explain the use of the following fields as indicated in Figure 1:

- (i) Command type; (2 marks)
  - (ii) Table or stored Procedure Name; (2 marks)
  - (iii) Command text (SQL). (2 marks)
- (d) Write a program in Visual Basic language that would generate the following output when executed. (8 marks)

				1
			1	2
		1	2	3
	1	2	3	4
1	2	3	4	5
			4	

5. (a) Outline the function of each of the following Visual Basic program windows:
- (i) form layout; (1 mark)
  - (ii) immediate. (1 mark)
- (b) (i) Distinguish between *single document interface* (SDI) and *multiple document interfaces* (MDI) as used in Visual Basic programming. (4 marks)
- (ii) Explain a circumstance under which the statement *Option Explicit* is used in a Visual Basic Program. (2 marks)
- (c) The segment code below is a declaration of *user-defined data type* in Visual Basic programming.

```
Private Type Customer
    CustomerName As String
    AcctNo As Integer
    Balance As Currency
End Type
```

Write a segment code to declare a variable of Customer type. The program should then assign the values in Table 3 to the variables and display the values of the record on a picturebox. (4 marks)

Variable	Value
CustomerName	Alex
AcctNo	2005
Balance	20000

Table 3

- (d) Write a program in Visual Basic language that prompts a user to enter two numbers through the use of a text box. The program then performs the division of the two numbers and displays the results. The program should include an error object that traps the error arising from the division by zero. (hint: division by zero error is 11) (8 marks)

6. (a) Describe each of the following as used in Visual Basic Programming:
- (i) data control; (2 marks)
  - (ii) database engine. (2 marks)
- (b) State the output from each of the following Visual Basic statements: (4 marks)
- (i) Print Format (8972.2, "Fixed")
  - (ii) Print Format (8972.265, "Standard")
  - (iii) Print Format (8972.265, "Currency")
  - (iv) Print Format (0.56324, "Percent")

- (c) Ann created a program in Visual Basic. When she executed, she encountered the error message *Object required (Error 424)*. Explain **three** possible causes of this error. (6 marks)
- (d) Write a program in Visual Basic that prompts a user to enter a numeric value of upper bound of a matrix. The program then assigns the squares of all the positive integers less than the number entered and displays them on a list box. (6 marks)
- (a) Explain **two** methods associated with a Combo Box control in Visual Basic programming language. (4 marks)
- (b) Explain each of the following terms as used in Visual Basic programming:
- general procedure;
  - event procedure. (4 marks)
- (c) Distinguish between *parallel array* and *two dimensional array* as used in Visual Basic programming. (4 marks)
- (d) Figure 2 shows a Visual Basic form design intended to update a database with the fields; StudName, Class and AddNo using the ADO control named adostudDetails to interface the application and the database. Use it to answer the questions that follow:

Figure 2

Write a Visual Basic procedure attached to each of the following controls:

- the command button named cmdExit that would be used to close the form; (1 mark)
- the command button named cmdSave that would be used to capture values in the text boxes into their corresponding fields in the database; (4 marks)
- the command button named cmdDelete that would be used to delete the controls txtName, txtClass and lblAdmissionNumber and set focus to txtName. (3 marks)

8. (a) Outline the function of each of the following events associated with Visual Basic controls:
- (i) KeyDown; (1 mark)
  - (ii) KeyPress; (1 mark)
  - (iii) KeyUp; (1 mark)
  - (iv) MouseDown. (1 mark)
- (b) Distinguish between *argument* and *parameter* as used in Visual Basic programming. (4 marks)
- (c) Outline **four** advantages of using SQL commands in reports created in Visual Basic. (4 marks)
- (d) Write a program in Visual Basic to prompt a user to enter a number through inputbox function. The program should then assign all the odd numbers less than the number entered into a dynamic array. The program should display numbers in the array in the picture box control. Use *while* loop and attach the code to a command button. (8 marks)

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