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 questions in the answer booklet provided.
Candidate 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.

Turn over

1. (a) Outline the function of each of the following *textbox control properties* as used in Visual Basic program:

    (i) AutoSize;

    (ii) Locked;

    (iii) MultiLine;

    (iv) ReadOnly. (4 marks)

    (b) Explain **three** hardware considerations to be made when installing a Visual Basic program. (6 marks)

    (c) Explain a circumstance that would necessitate the use of each of the following data types in a Visual Basic program:

    (i) boolean;

    (ii) Single;

    (iii) variant. (6 marks)

    (d) Distinguish between *ActiveX Data Objects (ADO)* and *Open Database Connectivity (ODBC)* as used in a Visual Basic program: (4 marks)

2. (a) State the function of each of the following interfaces in a Visual Basic Program:

    (i) data view window;

    (ii) watch window;

    (iii) project explorer window. (3 marks)

    (b) Differentiate between *form.hide* and *unload me* statements as used in a Visual Basic program. (4 marks)

    (c) Explain a circumstance under which each of the following compile error messages may be displayed during Visual Basic program execution:

    (i) Expected: end of statement;

    (ii) Syntax error;

    (iii) Type mismatch. (6 marks)

    (d) Figure 1 shows a Visual Basic program form with ADO control having its connection string and record source properties set to connect to a database.
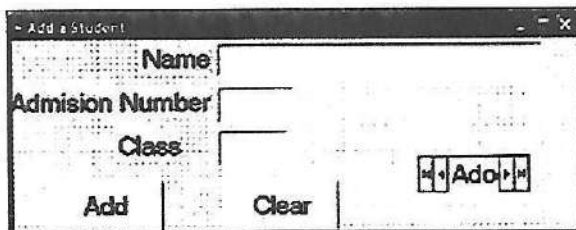

Figure 1

Write a Visual Basic program for the Add button that allows a user to add details from the text boxes to a database table. (7 marks)

3. (a) Outline the procedure followed in shell sort algorithm in programming. (4 marks)

(b) Explain each of the following interfaces created in a Visual Basic program:

(i) multiple document interface;

(ii) tree view interface. (4 marks)

(c) Distinguish between *refresh* and *updaterecord* methods of data control in a Visual Basic program. (4 marks)

(d) A company pays commission to sale representatives based on the criteria shown in Table1. Use it to answer the question that follows.

Sales	Commission Rate
From 0 To 9999	2%
From 10000 To 19999	5%
From 20000 To 29999	10%
From 30000 and above	15%

Table 1

Write a Visual Basic program that will accept the sales amount through the use of an input box and compute the commission earned. The program should then output the commission in a message box. Use the *select case* control structure and attach the code to a form load event. (8 marks)

4. (a) Outline **four** advantages of using *bubble algorithm* in programming. (4 marks)

(b) Distinguish between *BOF* and *EOF* recordset object properties ADO control as used in a Visual Basic programming. (4 marks)

(c) A program developer used the break mode interface during program debugging in a Visual Basic program. Explain **three** activities the developer is likely to perform in this interface. (6 marks)

(d) The sum of the first 20 terms of the following series is to be computed.
       7, 17, 27, 37, …
Write a Visual Basic program that uses a function to compute the sum of the series and display the result in a message box. Use *While loop* control structure and attach the code to a command button. (6 marks)

5. (a) Explain each of the following activities carried out during program development in Visual Basic programming:

(i) compilation;

(ii) debugging;

(iii) execution.   (6 marks)

(b) Distinguish between *For...next loop* and *For each...next loop* program control structures as used in Visual Basic programming, giving the syntax in each case.   (6 marks)

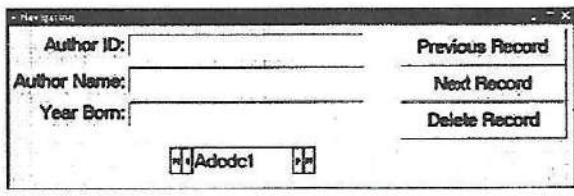(c) Figure 2 shows a Visual Basic form used to add data in the three fields of the Authors table in a database.

Figure 2

Table 1 shows properties for the controls used in the form.

Name	Datasource	DataField	Caption
txtAuthlD	datAuthors	Au ID	
txtAuthor	datAuthors	Author	
txtYearBorn	datAuthors	Year Born	
cmdMoveNext			Next Record
cmdMovePrevious			Previous Record
cmdDelete			Delete Record

Write the code for each of the following

(i) cmdMoveNext_Click() event;

(ii) the cmdDelete_Click() event.   (8 marks)

6. (a) Explain **three** options that a programmer can specify using *on-error statement* to manage errors in Visual Basic programming.   (6 marks)

(b) A programmer intends to use ADO control to manage records in the database while creating a Visual Basic program. Outline **four** types of recordset in ADO that the programmer is likely to use.   (4 marks)

(c) State **two** differences between *standard modules* and *form modules* as used in a Visual Basic program.   (4 marks)

(d) With the aid of an example, outline the function of each of the following operators as used in Visual Basic program:

(i) caret (^)

(ii) Mod

(iii) backslash (\)

(iv) AND (6 marks)

7. (a) State **four** tasks that can be performed in *data environment designer* as used in report generation in Visual Basic programming. (4 marks)

(b) With the aid of an example, explain each of the following terms as used in arrays:

(i) subscript;

(ii) index. (6 marks)

(c) Figure 3 shows a section of a toolbox window in a Visual Basic program. State the function of each of the features labelled (i), (ii) and (iii). (3 marks)
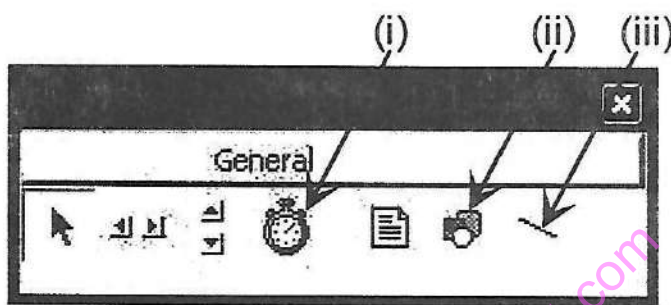

Figure 3

(d) Write a Visual Basic program that prompts a user to enter the first 5 integers through the use of inputbox function. Each time the value is entered, it is assigned to an array named Myarray. The program should then compute the average of the values and display the result on a label. Use a *Do...while* loop and attach the code to a command button. (7 marks)

8. (a) Explain each of the following types of Visual Basic program environment:

(i) design environment;

(ii) run-time environment. (4 marks)

(b) State **four** differences between *local variables* and *global variables* as used in a Visual Basic program. (4 marks)

(c)   Interpret the following Visual Basic program code statement by statement: (6 marks)

```
Dim username As String
Dim position As Integer
Dim count As Integer

username = "DEPARTMENT"

For position = 1 To Len(username)
username = Mid(username, position + 1)
Picture1.Print username
Next
```

(d)   Figure 4 shows an interface of a hotel system used for selecting food items from the available items. Use it to answer the questions that follow.
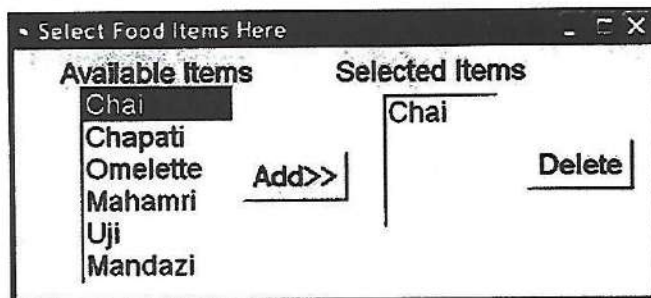

Figure 4

Write a Visual Basic program code for each of the following command button:

(i)   **Add>>** that allow a user to make selection of any food item from the available items listbox and places it in the selected item listbox.   (3 marks)

(ii)   **Delete** that allow a user to remove an added item from the selected item listbox.   (3 marks)

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