

Name: \_\_\_\_\_ Index No.: \_\_\_\_\_ / \_\_\_\_\_

2920/205

VISUAL PROGRAMMING

Candidate's Signature: \_\_\_\_\_

November 2015

Time: 3 hours

Date: \_\_\_\_\_



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

MODULE II

VISUAL PROGRAMMING

3 hours

INSTRUCTIONS TO CANDIDATES:

*Write your name and index number in the spaces provided above.*

*Sign and write the date of examination in the spaces provided above.*

*Answer any FIVE of the EIGHT questions in the spaces provided.*

*All questions carry equal marks.*

*Candidates should answer questions in English*

For Examiner's Use Only

Question	1	2	3	4	5	6	7	8	TOTAL SCORE
Candidate's Score									

This paper consists of 20 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) (i) Outline two reasons for using Visual Basic programming language when developing a Hospital Management System. (2 marks)

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- (ii) Describe event *driven process* as used in Visual programming. (2 marks)

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- (b) Outline the function of each of the following *Multiple Document Interface (MDI)* in a Visual Programming Language: (1 mark)

(i) menu bar

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(ii) toolbox (1 mark)

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(iii) code form. (1 mark)

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- (c) With the aid of an example, distinguish between *setting properties at design time* and *setting the properties at run time*. (5 marks)

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- (d) Figure 1 shows a Visual Basic application used to compute multiplication and division of numbers.  
 Write a Visual Basic program that uses a function for each computation. The program should display the phrase 'illegal division operation' on a message box when the denominator is zero. (8 marks)

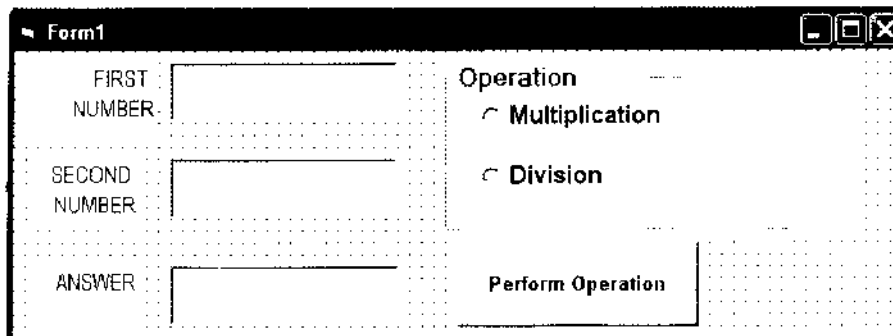


Figure 1

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2. (a) With the aid of an example, explain the function of the underscore symbol in Visual Basic programming (3 marks)

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- (b) Convert the following statement into its equivalent in Visual Basic programming language. (3 marks)

*If any of x and y is at least 100 and their product is at most 1000, store their product into z. Otherwise store 1000 into z.*

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- (c) Interpret the following Visual Basic code. (6 marks)

```
Private Sub Button1_Click()  
    Dim x As Integer = 6  
    Dim y As Integer = 8  
  
    Label1.caption = x & y  
  
    temp = x  
    x = y  
    y = temp  
    Label2. caption = x & y  
  
End Sub
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- (d) Write a Visual Basic program that assigns numeric values; 80, 60, 70, 30, 40 to an array. The program should then computes the average of the values and display the values and average on a list box. (8 marks)

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3. (a) (i) List **four** objects that may be accessed using project explore window of a Visual Basic program during the development an application. (2 marks)

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(ii) Outline **two** events and **two** methods associated with a picture box control. (4 marks)

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(b) State **two** differences between *sub procedures* and *event procedures* as used in Visual programming (4 marks)

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- (c) With the aid of an example in each case, distinguish between *two-dimensional array* and *parallel array* as used in programming. (5 marks)

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- (d) Write a visual basic program that prompts a user to enter a name of an animal through the use of input box function. The name entered is then assigned to a dynamic array. A user prompted to select Ok or cancel from a message box when required to add more animals or terminate the program. Attach the code to a command button. (5 marks)

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4. (a) Outline each of the following events of a command button as used in Visual programming.

(i) MouseHover (1 mark)

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(ii) KeyPress (1 mark)

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(iii) MouseDown. (1 mark)

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(b) Outline the steps to be followed when creating a report using a data environment given that a database is already created. (4 marks)

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(c) (i) Describe the shell sort algorithm used in programming to sort elements as used in programming. (3 marks)

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- (ii) Distinguish between *Visual programming and object-oriented programming*. (4 marks)

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- (d) The formula  $F = \frac{2}{5}C + 32$  is used to convert temperature value from Celsius to Fahrenheit where F is temperature in Fahrenheit and C is temperature in Celsius.

Write a Visual Basic program that prompts a user to enter temperature in Celsius using an input function. The program should use a function to convert the temperature to its equivalent in Fahrenheit and display the output on a label. (6 marks)

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- 5 (a) In a Visual Basic program, the variables x and y stores values 10 and 4 respectively. State the output generated from each of the following logical statements when executed:

(2 marks)

(i)  $(x+y) \neq 15$  And  $y > 3$

(ii)  $(x+y) \neq 15$  Or  $y > 3$

(iii)  $x = 10$  Xor  $y < 0$

(iv) Not  $(x+y) \neq 15$

(b) Distinguish between *listbox* and *FlexGrid* controls as used in a Visual Basic program. (4 marks)

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(c) Describe each of the following sections of a report design as used in a Visual Basic program.

(i) Detail (2 marks)

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(ii) Page Footer (2 marks)

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(iii) Report Footer. (2 marks)

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6. (a) (i) Outline the stage in programming when each of the following errors can be detected.
- I. syntax errors (1 mark)
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- 
- III. logical errors. (1 mark)
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- (ii) Explain the error in each of the following Visual Basic statements.
- I.  $a/x = y/\theta$  (2 marks)
- 
- II. `for ( x = 0; x < 10; x++ ) {  
msgbox("Hello word") }` (2 marks)
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- (b) With the aid of an example, explain a way in which a public procedure can be accessed from a form in Visual Basic programming. (3 marks)
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- 
- 
- (c) State the Visual Basic control represented by each of the following names:
- (i) tmrTask (1 mark)
- 
- (ii) shpTask (1 mark)
- 
- (iii) fraTask (1 mark)
- 
- (iv) drvTask. (1 mark)
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- (d) Every month, a salesperson is paid a fixed amount of Ksh 10,000. The salesperson is paid an additional commission at the rate of 5% of the individual sales greater or equal to Ksh 30,000 or suffers a pay cut of Ksh 1000 if the sales fall below Ksh.30,000. The total earning is taxed at a rate of 15%.

Write a Visual Basic program that allows a user to enter the amount of sales through the use of a text box. The program then computes the commission, the tax deducted and the net pay that the salesperson will receive. The net pay for the month should then be displayed on a label. Attach the code to a command button. (7 marks)

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7. (a) Explain the scope of a procedure defined by use of each of the following the keywords:  
 (i) Public (2 marks)

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- (ii) Private. (2 marks)

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- (b) Figure 2 shows a Visual Basic form design to manipulate data in a database. Use it to answer the questions that follow.

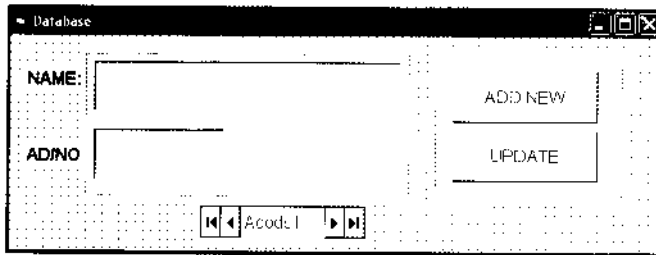


Figure 2

- (i) Write a Visual Basic program statement attached to a command button:  
 I. ADD NEW to allow a user to *add a new record* (2 marks)

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- II. UPDATE to allow a user to *update* the records (2 marks)

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- (ii) Modify the program by adding a procedure such that when the command button *ADD NEW* is clicked, it becomes disabled and the button *UPDATE* is enabled and vice versa (4 marks)

- (c) A prime number is a positive integer which is divisible by 1 and itself. For example, 7 is a prime number since it has a non-zero remainder when divided by 6 or 5 or 4 or 3 or 2. Write a Visual Basic program that prompts a user to enter an integer value through the use of an inputbox function. The program should test if the number entered is a prime number or not. If not, the program displays an appropriate message. Use the *for...next* loop and *mod* operator. Attach the code to a command button. (8 marks)



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8. (a) Describe an algorithm for searching a binary search tree. (4 marks)

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(b) Figure 3 shows a form which has an ADO control and command buttons used for navigating through records in a Visual Basic program. Use it to answer the questions that follow.

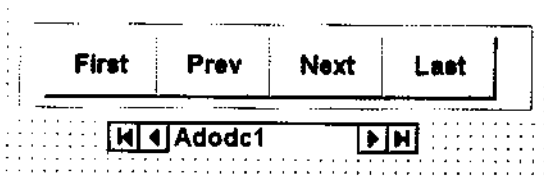


Figure 3

(i) Outline the error associated with the events attached to the button labelled  
 1. Prev (1 mark)

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II. Next.

(1 mark)

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(ii) Explain a way of preventing the errors in (i).

(4 marks)

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(c) Alex intends to link a Visual Basic program to a database using ActiveX Data Control. Explain **three** record source commands that he may use. (6 marks)

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