kasneb

DICT LEVEL II

PROGRAMMING CONCEPTS

TUESDAY: 21 May 2019. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

ALL programs written should be in Visual Basic programming language.

QUESTION ONE

(a) Explain the function of the following properties of the label control in Visual Basic:

(i) Alignment. (1 mark)

(ii) Appearance. (1 mark)

(b) Complete the table below by attaching an appropriate naming prefix to each of the objects:

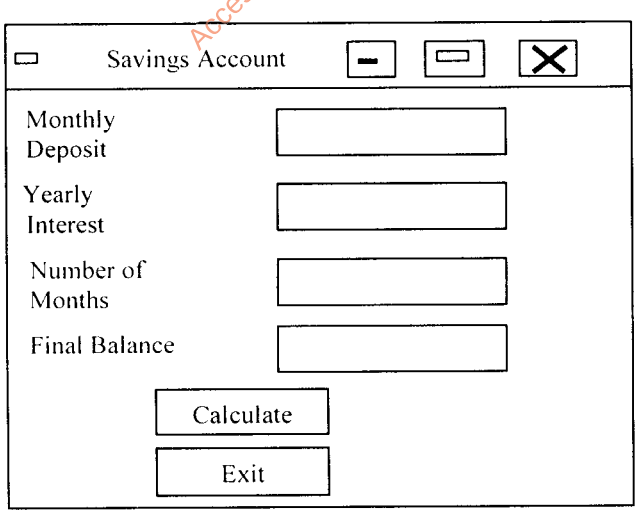
	Object	Prefix
(i)	Form	
(ii)	Command Button	
(iii)	Label	
(iv)	TextBox	
(v)	Menu	
(vi)	CheckBox	

(6 marks)

(c) List four compilation options that could be used during program testing in Visual Basic. (4 marks)

(d) Enumerate four steps followed in building a user help file in Visual Basic. (4 marks)

(e) The user interface below could be used to calculate the final balance of a savings account in a bank that earns monthly interest:



Required:

(i) Write a code for the Exit button click event. (1 mark)

(ii) State the Visual Basic Statement that could be used to force variable declaration in the general declaration area of the form. (1 mark)

(iii) Suggest four variables that might be used in the general declaration area of the form. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Explain the meaning of the following phrases:

(i) Imperative programming. (2 marks)

(ii) Drag and drop events as used in Visual programs. (2 marks)

(b) In relation to Visual Basic Programming, state the symbolic constants associated with the following:

(i) OK button selected. (1 mark)

(ii) Cancel button selected. (1 mark)

(iii) Abort button selected. (1 mark)

(iv) Yes button selected. (1 mark)

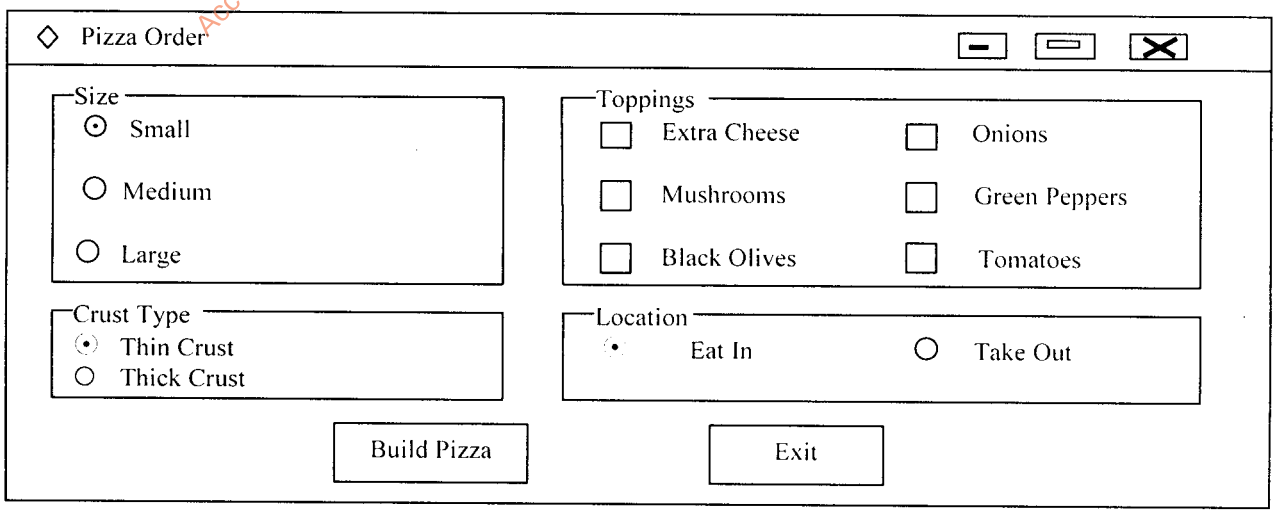
(c) Consider the code below:

```
If Rooms = 5 Then
    Guests = "Five guests"
    Elseif Rooms >=13 and Rooms <= 19 Then
    Guests="About Fifteen"
    Elseif (Rooms >=  20 and Rooms < = 35) or (Rooms >= 60 and (Rooms <= 65) Then
      Guests="Large groups" Else
      Guests="Undefined!"
    EndIF
```

Required:

Write the corresponding code using select case statement. (4 marks)

(d) A Visual Basic programmer intends to use the user interface below to order pizza by simply clicking on check boxes and option buttons:



The pizza order interface consists of four option buttons namely size, crust type, toppings and location.

Required:

Attach the code to the four option buttons array click events. (8 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain the following terms as used in computer programming:

(i) Binary instructions. (2 marks)

(ii) Pseudocode. (2 marks)

(b) Analyse four differences between a "compiler" and an "interpreter'. (8 marks)

(c) A good software developer should have a good understanding of computer algorithms.

Outline four properties of a good algorithm. (4 marks)

(d) The code below intended to calculate the circumference of a circle contains some errors:

```
I     Try
II    Dim radius As Integer
III   radius = txtRad
IV    txtCircum = radius * radius * 3.142
V     Catch  ex  As Exception
VI    messageBox . Show (ex.message)
VII   ....
```

Required:

Identifying the line number, state four errors in the above code and suggest possible corrections. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) A procedure is a piece of code in a large program that performs a specific task.

Required:

Defend the use of procedures in a Visual Basic program. (4 marks)

(b) Explain the function of the following keywords in Visual Basic:

(i) Dim. (1 mark)

(ii) Me. (1 mark)

(iii) Cstr. (1 mark)

(iv) REM. (1 mark)

(c) Write a Visual Basic Statement to:

(i) Declare a Variable named Z for storing decimal numbers. (1 mark)

(ii) Declare a Constant named Pi for storing the value 3.142. (1 mark)

(d) Compute the expected output of each of the following Visual Basic Statements:

(i) 15 mod 4 (1 mark)

(ii) Math.Round (7.666,1). (1 mark)

(iii) Int (16.01). (1 mark)

(iv) Math.pow (2,3). (1 mark)

(v) Math.sqrt(49). (1 mark)

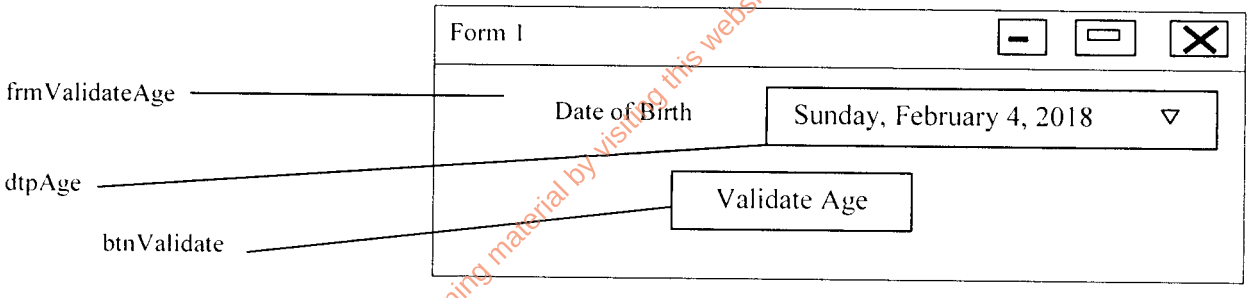
(vi) a = ++b, where b = 25 (1 mark)

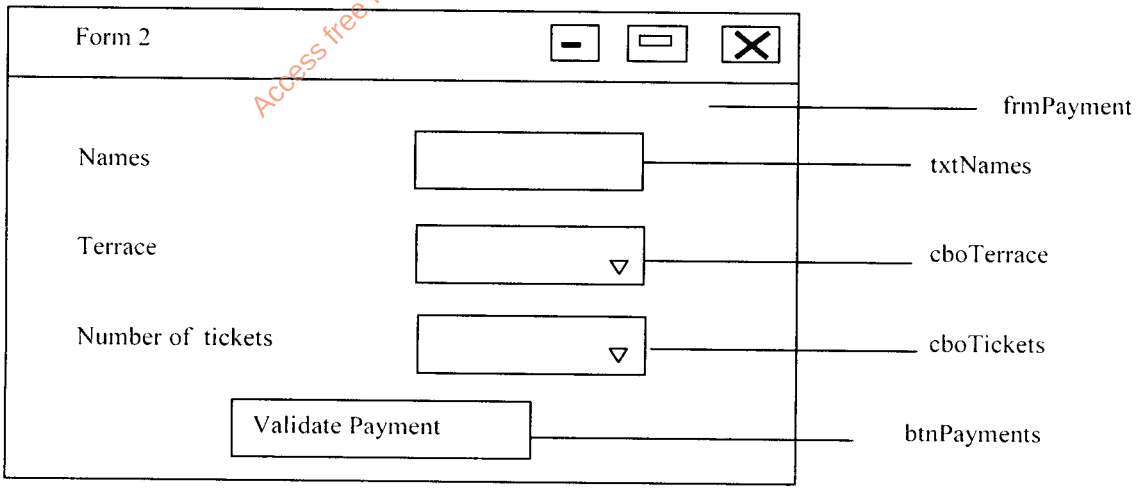
(e) Write the expected output to the Visual Basic code below:

```
Private Sub btnDisplay _ click ( )
    Dim   word1, word2, new word As string
    Word1="Hello"
    Word2= "programming"
    Newword= word1.substring (2,2) & word2.substring (3,4)
    If newWord.length>3 Then
    txtBox.Text = newword
    else
    txtBox.Text ="Sorry, not found"
Endif
End Sub
```

(4 marks)
(Total: 20 marks)

QUESTION FIVE
Below are two interfaces for an adults' only cinema that restricts buying of tickets by date of birth.





Required:

(a) Write a Visual Basic code behind the 'Validate Age' button that calculates the age of the user in Form 1. If the age of the user is below 18 years, the program should show a pop up, "Your age does not allow you to buy a ticket". Otherwise, the user should be redirected to Form 2, registration and payments. (6 marks)

(b) Tickets in different terraces have different prices as shown in Table 1. If a person buys more tickets, it gets cheaper by different percentages as shown in Table 2.

Table 1: Ticket price in different terraces

Terrace	Cost (Sh.)
1	2000
2	1500
3	1000
4	500

Table 2: Percentage cost of different number of tickets

Number of tickets	Percentage costs
1	100
2	80
3	70
4	60

Required:

(i) Draw a flow chart that will represent the information in table 1 and table 2 above. (6 marks)

(ii) Write a Visual Basic program to calculate the ticket costs and display results in a messagebox.

Assume that a person can buy a maximum of four tickets. (8 marks)

(Total: 20 marks)

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