kasneb

DICT LEVEL II

PROGRAMMING CONCEPTS

TUESDAY: 24 November 2020.   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)   Define the following programming terminologies:

      (i)   Syntax.   (2 marks)

      (ii)   Constant.   (2 marks)

      (iii)   Variable.   (2 marks)

(b)   Highlight three features of each of the following programming approaches:

      (i)   Event driven programming.   (3 marks)

      (ii)   Object oriented programming.   (3 marks)

(c)   Write a Visual Basic program that accepts an integer number and outputs the message: "The number entered is less than ten" if true and "The number is equal to or greater than 10" if false.   (4 marks)

(d)   (i)   Write the expected output to the code below:

            Dim Fname as String = "Maneno"
            Dim Lname as String = "Matano"
            txtBox.Text = Fname& "Son of" &Lname & "the father of Amos"   (2 marks)

      (ii)   Rewrite the following code using a logical operator:

            If (a < b) Then
               If (b < c) then
                  Txt.Output.Text = b& "is between" &a "and" &c
               Endif
            Endif   (2 marks)
                                               (Total: 20 marks)

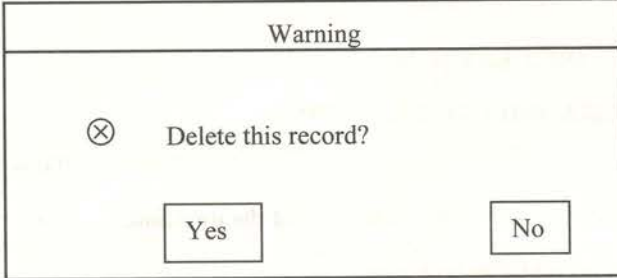**QUESTION TWO**

(a)   Describe each of the following data types as used in Visual Basic language:

      (i)   Variant.   (1 mark)

      (ii)   Double.   (1 mark)

      (iii)   String.   (1 mark)

      (iv)   Boolean.   (1 mark)

(b)   Outline two circumstances in which a programmer would prefer to use an interpreter when translating a program.
                                                                                                          (2 marks)

(c)   Write Visual Basic Code statements that would result in the following graphical user interfaces:
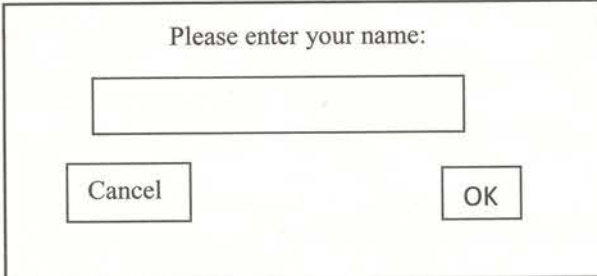
        (i)

        ┌───┐
        │   Warning   │
        ├───┤
        │   │
        │   ⊗   Delete this record?   │
        │   │
        │   ┌─────────┐   ┌─────────┐   │
        │   │   Yes   │   │   No   │   │
        │   └─────────┘   └─────────┘   │
        └───┘

                                                                                                          (3 marks)

        (ii)

        ┌───┐
        │   Please enter your name: │
        │   │
        │   ┌─────────────────────────────┐   │
        │   │   │   │
        │   └─────────────────────────────┘   │
        │   │
        │   ┌──────────┐   ┌─────────┐   │
        │   │ Cancel │   │   OK   │   │
        │   └──────────┘   └─────────┘   │
        │   │
        └───┘

                                                                                                          (3 marks)

(d)   Jasper, a computer programmer, intends to create a program using Visual Basic Language.

        Required:
        State the program development stage in which he could:

        (i)   Create flow charts.   (1 mark)

        (ii)   Choose the identifiers.   (1 mark)

        (iii)   Check whether the program is producing the desired results.   (1 mark)

        (iv)   Adjust the program to meet new demands.   (1 mark)

(e)   Distinguish between "user oriented documentation" and "operator oriented documentation" as used in programming.
                                                                                                          (4 marks)
                                                                                                    (Total: 20 marks)

QUESTION THREE
(a)   Explain the purpose of each of the following Visual Basic files:

        (i)   .vbp file.   (1 mark)

        (ii)   .frm file.   (1 mark)

        (iii)   .vbw file.   (1 mark)

        (iv)   .bas file.   (1 mark)

(b)   Bidii Computer College charges each student Sh.60,000 in fees every semester. In order to encourage students to pay fees on time, the management have put the following measures:

  1.   A discount of Sh.5,000 is given if fees are paid at least two months before opening day.

  2.   A discount of Sh.2,000 is given if fees are paid within one month to opening day.

  3.   No discount is given if fees are paid on opening day.

  4.   A fine of Sh.3,000 is charged if fees are paid after opening day.

Required:
Draw a flowchart for a program to calculate the amount of fees paid by a student.   (7 marks)

(c)   Explain the importance of each of the following in a Visual Basic programming environment:

  (i)   Option explicit statement.   (2 marks)

  (ii)   ADO data control.   (2 marks)

(d)   Two programmers, Yusuf and Juliet, shared the work of creating a program amongst themselves.

Required:
  (i)   Identify the programming approach used by Yusuf and Juliet.   (2 marks)

  (ii)   Outline three advantages of the approach identified in (d) (i) above.   (3 marks)
                                                                              (Total: 20 marks)

QUESTION FOUR
(a)   Highlight four variable naming conventions used in programming.   (4 marks)

(b)   Explain the following terminologies as used in programming:

  (i)   Function calling.   (2 marks)

  (ii)   Top-down approach.   (2 marks)

(c)   Write an algorithm to search for a value sequentially in a given list of unsorted elements.   (6 marks)

(d)   Guests in a party were seated according to some number preprinted on their cards from 1 to 5 as follows:

  •   Number 1 -"Tent1".

  •   Number 2 -"Tent 2".

  •   Number 3 -"Tent 3".

  •   Number 4 -"Tent 4".
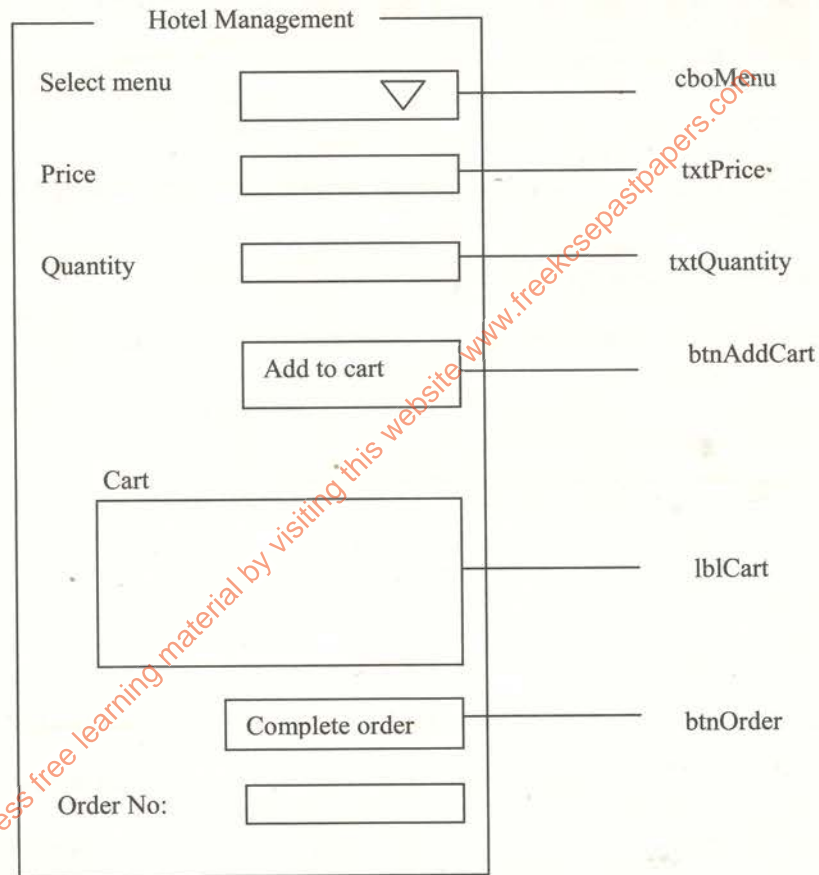
  •   Number 5-"Tent 5".

Required:
Write an algorithm to implement the above seating criteria using a Select Case control structure that will execute when a user enters a card number at the console.   (6 marks)
                                                                              (Total: 20 marks)

QUESTION FIVE

(a) Highlight two advantages of programming in high level languages compared to low level languages. (2 marks)

(b) Explain the following terms:

    (i) Data source. (2 marks)

    (ii) Object control. (2 marks)

(c) Write a Visual Basic program to open "kasneb.txt" file which is stored in drive D under the Document Sub-folder and display its contents in the txt1.text textbox. (4 marks)

(d) In a fast food restaurant, a client can place an order on a menu using the interface below:

```
          ┌────────── Hotel Management ──────────┐
          │                                       │
          │  Select menu    ┌──────────▽──┐       │────  cboMenu
          │                 └─────────────┘       │
          │                                       │
          │  Price          ┌─────────────┐       │────  txtPrice
          │                 └─────────────┘       │
          │                                       │
          │  Quantity       ┌─────────────┐       │────  txtQuantity
          │                 └─────────────┘       │
          │                                       │
          │              ┌─────────────┐          │────  btnAddCart
          │              │ Add to cart │          │
          │              └─────────────┘          │
          │                                       │
          │     Cart                              │
          │     ┌───────────────────────┐         │
          │     │                       │         │────  lblCart
          │     │                       │         │
          │     │                       │         │
          │     └───────────────────────┘         │
          │                                       │
          │           ┌─────────────────┐         │────  btnOrder
          │           │  Complete order │         │
          │           └─────────────────┘         │
          │                                       │
          │   Order No:   ┌─────────────┐         │
          │               └─────────────┘         │
          └───────────────────────────────────────┘
```

Required:

    (i) Write Visual Basic code that will add items "Ugali", "Rice", "Beef", and "Kales" on cboMenu. (4 marks)

    (ii) Write Visual Basic code that will add "140" to txtPrice when item "Rice" in (d) (i) above is selected. (2 marks)

    (iii) Write code that will append the selected menu price and quantity to a new line in lblCart when btnAddCart button is clicked. (4 marks)

(Total: 20 marks)

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