UNISA
university
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ICT2611

October/November 2014

GRAPHICAL USER INTERFACE PROGRAMMING

Duration	2 Hours	100 Marks

EXAMINERS .
FIRST   MR L ARON
SECOND   MR C DONGMO

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of 9 pages

INSTRUCTIONS:

1   Answer all the questions
2   All rough work must be done in your answer book
3   The mark for each question is given in brackets next to the question
4   Enjoy!

[TURN OVER]

QUESTION 1 – Multiple Choice   [20]

Identify the choice that best completes the statement or answers the question

1 1   A _____ is a container that holds the entire GUI controls that make up your Visual Basic Net program

    A   Windows form
    B   Control group
    C   Top-level group
    D   Tool box

1 2   The Label control is used in a Visual Basic NET application to display this in a window

    A   A piece of text
    B   A pop-up help box for other controls
    C   The information contained in the title bar at the top of the window
    D   None of the above

1 3   Which of the following statements is not true about user-defined functions?

    A   Functions have parameter lists just like general sub procedures
    B   Variables declared inside the function are global to the entire module
    C   Functions are not associated with any control (they handle no events)
    D   Just like built-in functions, user-defined functions return a value to the caller

1 4   When using encapsulation how should data be shared with external code?

    A   Events
    B   Methods
    C   Properties
    D   Private variables
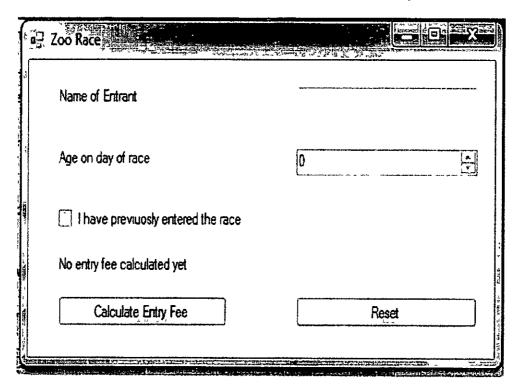
[TURN OVER]

1 5   Methods declared with the following modifier are not accessible outside a class

    A   Private

    B   Protected

    C   Friend

    D   Global

1 6   Which is a type of procedure found in Visual Basic Net?

    A   Event Handler

    B   Function

    C   Sub

    D   All of the above

1 7   The analysis phase of software development involves

    A   Collecting the requirements about what the program will accomplish

    B   Creating a detailed plan on how the program will accomplish the requirements

    C   Writing the software with a program such as VB NET

    D   Both A and B

1 8   Fun Toys manufactures several versions of a basic doll Assume that the basic doll is
    called Model A and the versions are called B, C, and D In the context of OOP, the
    Model B, C, and D are called ____classes

    A   Base

    B   Derived

    C   Encapsulated
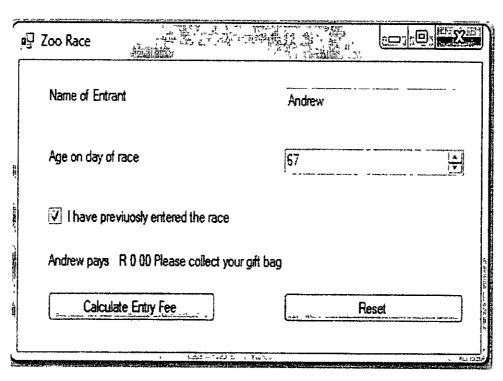
    D   Instance

[TURN OVER]

1 9   In the context of OOP, _____ refers to the fact that a class contains all of the attributes and behaviors that describe the object of the class created

        A   Inheritance
        B   Blue print
        C   Encapsulation
        D   Abstraction

1 10   In the context of OOP, a _____ is a pattern used to create an object

        A   Class
        B   Behavior
        C   Polymorphism
        D   Model

QUESTION 2   **[20]**

Consider the following interface of a program that calculates the entry fee to a zoo race

<u>Name properties for controls are as follows</u>

Form frmZRace

Textbox tbName

Numeric Up Down nUDAge

Checkbox cbHistory

Label lbAnswer

Button btEntryFee

The fee table is given below Note the following

- If you have visited the zoo before, then you get a R10 discount on the required entrance fee

- Pensioners (i e visitors 60 years and older) as well as children 6 years or younger pay no admission fee, therefore the discount is not applicable to them

- If the entrant is a pensioner who has been to the zoo before, or a child six years or younger who has not been to the zoo previously, then the entrant must receive a Goody Bag!

Age on day of race	Entry fee (No discount)
(Six years or younger) or (60 years and older)	Free
7 to 12 years	R25 00
13 to 18 years	R50 00
19 to 59 years	R60 00

2 1 Draw a flowchart for the calculate entry fee button   (10)

2 2 Give the corresponding Visual Basic Net code for your flowchart in 2 1 Use the name properties for the controls as given above   (10)

QUESTION 3   [30]

3 1   A section of code is required to test a password and the user is restricted to three
       tries The user enters the password in a text box called TPassword, and then clicks a
       button called BPasswordTest A message box is used for output Output occurs when
       the button is clicked and can be one of three possibilities "Correct", "Incorrect - Try
       again", "Three tries are over"

       You are required to write code that will go into the on click event handler of the button
       BPasswordTest

       You can assume that the following two global variables exist

       Dim ThePassWord As String = "UNISA",   //This is the actual password
       Dim MaximumTries As Integer = 3,

                                                                                 (10)

3 2   A program is written that records maximum daily temperatures for a week (7 days)
       and stores them in an integer array called MaxTemp You are required to write a sub
       procedure called CalcTemp that receives as input the array MaxTemp and returns
       the lowest, highest and average temperature for the week

3 2 1 Provide the pseudocode for the sub procedure CalcTemp   (10)

3 2 2 Provide the Visual Basic Net code for the sub procedure   (10)

QUESTION 4 [30]

We want to write a program to calculate the water bill when the user clicks on a button called "Bill" Two readings in kiloliters are entered into textboxes titled "Old read" and "New read" A label called "Your Bill" must be used to show the total bill for the month The program will calculate the water consumption from the two readings given and display it in the label called consumption The two meter readings must be validated Readings are valid when both are numeric and if the old reading is smaller or equal to the new reading If any reading is invalid the procedure must not be allowed to execute any further In each case, an appropriate error message must be displayed in a message box

4 1 Plan this project properly and present the result in a TOE chart (10)

4 2 Draw a well-planned sketch of the user interface (7)

4 3 Assume a water bill needs to printed, explain the process of how you would do printing in Visual Basic Net The user should be able to view the bill before printing Give the names of the controls you would use and state there purpose (6)

4 4 Assume the textboxes are named TBOldRead and TBNewRead in Visual Basic Net Provide the code that will be able to do the necessary validations and display error messages (7)

Total Marks = 100