

SOUTH EASTERN UNIVERSITY OF SRI LANKA

THIRD EXAMINATION IN BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY FOR MANAGEMENT STUDIES -2010/2011

SEMESTER-I, JULY/AUGUST-2012

ITMS 3143 RAPID APPLICATION DEVELOPMENT

Answer all questions

Time: Three Hours

Instructions to the Candidate:

Use proper naming for variable names, etc. Use most suitable data types: Use Exception/Error handling as much as possible. And Write the code legibly.

Question 01

- a) You are given the following C# application interface. The program is designed to convert the value entered in Inches to Millimeters.

The screenshot shows a window titled "Distance Converter - SaNa". It has two text input fields. The first is labeled "Inches:" and contains the value "10". The second is labeled "M M:" and contains the value "254". To the right of the "Inches:" field is a button labeled "Process". To the right of the "M M:" field is a button labeled "Clear".

Control	Name
Textbox	inchesTextbox
Textbox	milliMeterTextbox
Button	processButton
Button	clearButton

Functionality:

- Inches are entered in the textbox and Process button is clicked. It should convert the value into millimeters and display the results. Validate the data entered and display error messages wherever needed.
- When Clear button is clicked values in the textboxes are cleared and cursor is brought to Inches textbox

Calculation Hints:

- One inch is equal to 25.4 millimeters

Write down the C# code for the Click event of Process and Clear button

(05 Marks)

- b) Briefly explain the following with Object Oriented Programming point of view.

- i. Methods and Constructors
- ii. Overloading and Overriding
- iii. Abstract class and Interfaces

(03 x 05 = 15 Marks)

(Total 20 Marks)

Question 02

a) A Salary Calculator designed for RAD Company (Pvt.) Ltd is shown in the following figure. Names of control in the window are also given.

Control	Name
Textbox	basicSalaryTextbox
Textbox	otRateTextbox
Textbox	otHoursTextbox
Textbox	loanTextbox
Textbox	bonusTextbox
Textbox	allowanceTextbox
Textbox	netSalaryTextbox
Button	calculateButton
Button	clearButton

Functionality:

- Basic Salary, OT Rate, OT Hours, Loan, Bonus, and Allowance are entered by the user. When the user clicks on the Calculate button, it has to calculate and display the Net Salary. Validate the data entered and display error messages wherever needed.
- When the user clicks this button it should clear all values in the textboxes and cursor should be in the Basic Salary textbox

Calculation Hints:

- $OT\ Amount = OT\ Rate \times OT\ Hours$
- $Net\ Salary = Basic\ Salary + OT\ Amount + Bonus - Loan$

You are requested to write down the C# code for the Calculate and Clear buttons.

(15 Marks)

b) What is Encapsulation? Briefly explain with suitable example.

(05 Marks)

(Total: 20 Marks)

Question 03

a) MIS Unit of SEUSL has designed a simple Marks Processor program. The program takes marks of three subjects as inputs and calculates the average marks and the displays the Grade according to the following criteria

Average	Grade
≥ 80	Distinction
≥ 60 to 79	Merit
≥ 50 to 69	Pass
< 50	Fail

Control	Name
Textbox	radTextbox
Textbox	dbmsTextbox
Textbox	programmingTextbox
Textbox	averageTextbox
Textbox	gradeTextbox
Button	processButton

Functionality:

- Marks obtained in three subjects are entered by the user and when the Process button is clicked, the program should find the average marks and display the Grade. Validate the data entered and display error messages wherever needed.

You are requested to write down the C# code for the Process Button. .

(15 Marks)

b) What is Inheritance? Briefly explain with suitable example.

(05 Marks)

(Total: 20 Marks)

Question 04

- a) RAD Bank gives Personal Loans for its customers. Customer can get 05 times of his/her Basic Salary as a Personal Loan. If the Loan Amount is more than 500,000/=, the Interest Rate is 12% otherwise Interest Rate is 17%. Maximum time period to pay the loan is 15 years.

Control	Name
Textbox	basicSalaryTextbox
Textbox	loanAmountTextbox
Textbox	totalInterestTextbox
Textbox	monthlInstallmentTextbox
Button	calculateButton
Button	clearButton
Button	exitButton

Functionality:

- Basic Salary is entered by the user and when the Process button is clicked, Loan Amount, Total Interest, and Monthly Installments are calculated and displayed. Validate the data entered and display error messages wherever needed.
- When the user clicks Exit button it should display a Message Box with Yes / No options. If the user clicks the Yes button it should terminate the program.

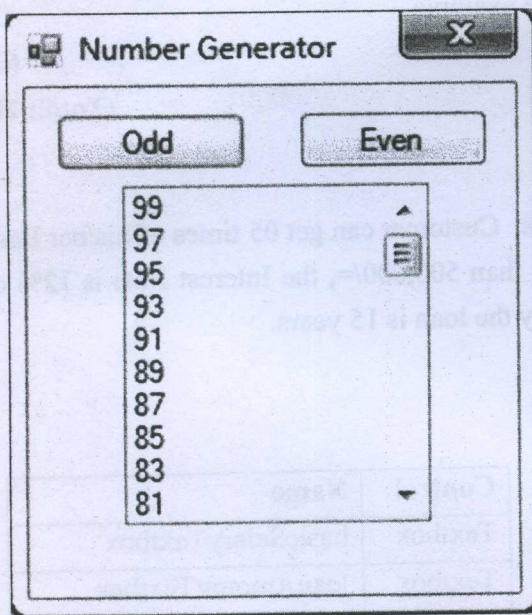
Calculation Hints:

- $\text{Total Interest} = \text{Loan amount} \times \text{Interest rate} \times \text{Maximum time period}$
- $\text{Monthly Installment} = \text{Loan amount} + \text{Total interest} / 12 \times \text{Maximum time}$

You are requested to write down the C# code for the Calculate, Clear, and Exit Buttons.

(15 Marks)

- b) The figure shown below is a C# Number Generator program. When the user clicks the Odd button, it should list all the odd numbers from 100 to 1. When the user clicks the Even number it should list all the even numbers from 100 to 1. Write down the C# code for both buttons. The click even of both buttons should clear the existing contents inside the list box and then add the relevant numbers.



Control	Name
Button	oddButton
Button	evenButton
Listbox	numbersListbox

(05 Marks)

(Total: 20 Marks)

Question 05

- a) RAD Team developed a Checkout program for Carnival Cool Bar – Oluvil, the program window is shown below.

Carnival Checkout

Items

Ice Cream

Drinks

Flavour

Vanilla

Strawberry

Chocolate

Topping

Nuts

Cream

Fruits

Submit

You have selected Strawberry flavoured Ice Cream with Nuts. Cream as toppings

Control	Name
RadioButton	iceCreamRadioButton
RadioButton	drinksRadioButton
RadioButton	vanillaRadioButton
RadioButton	strawberryRadioButton
RadioButton	chocolateRadioButton
Checkbox	nutsCheckbox
Checkbox	creamCheckbox
Checkbox	fruitsCheckbox
TextBox	ordersTextbox
Button	submitButton

Functionality:

When the user clicks the Submit button, the program should display the order information. Samples are shown below.

- Example 1

You have selected Strawberry flavoured IceCream with Cream, Nuts as Toppings.

- Example 2

You have selected Chocolate flavoured IceCream with no Toppings.

You are requested to write C# code for the Submit Button. When the user clicks the button the result should be displayed in the textbox given.

(15 Marks)

- b) What is Polymorphism? Briefly explain with suitable example.

(05 Marks)

(Total: 20 Marks)