



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2009/2010

INSTITUTE OF OPEN LEARNING

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

(INFORMATION TECHNOLOGY)

SIT 004: VISUAL PROGRAMMING

=====

DATE: TUESDAY 20TH JULY 2010

TIME: 2.00 P.M. - 4.00 P.M.

INSTRUCTIONS

Answer Question One and Any Other Two questions

Question One

- a) Briefly explain the importance of the following windows as used in visual basic IDE
 - i) Properties Window
 - ii) Toolbox

[4 marks]
- b) Using relevant examples explain the following terms as used in Visual Basic programming
 - i) Method
 - ii) Object

[4 marks]
- c) Differentiate between each of following:
 - i) Implicit and Explicit declarations
 - ii) Dynamic and Static variables
 - iii) Intrinsic controls and ActiveX controls

[6 marks]
- d) Write a Visual Basic program that inputs three integer numbers using Inputbox dialogs and computes for the sum and average of the numbers after a click of a command button. The program should display the sum and average by use of a picture box control. Design your GUI

[8 marks]

- e)
- i) Write a function procedure to calculate a simple interest when the principal, rate and number of years have been passed to the function
[3 marks]
 - ii) Write a short program that makes use of the function in (i) above to calculate the simple interest. Input the principal, rate and number of years using text boxes and display the results of the program in a label control. Use the formula shown below for simple interest calculation and design your graphical user interface.
[5 marks]
- $$\text{Simple Interest} = \frac{\text{Principal} * \text{Rate} * \text{Time}}{100}$$

Question Two

- a) Differentiate between a Sub procedure and a function procedure
[4 marks]
- b) A GUI is required to allow the user calculate the area of a circle in Visual Basic. The user is to type the value of the radius in a textbox. When the user clicks a command button, the area should be displayed in a label control.
 - i) Sketch a suitable GUI for the above and write down the properties that you would set for all the controls in the above GUI and their values.
[4 marks]
 - ii) Write a function that receives the radius and returns its area.
[4 marks]
 - iii) Write a procedure that receives the area and then displays it.
[4 marks]
 - iv) Write the appropriate click event procedure for the GUI. The event procedure should call the above procedures.
[4 marks]

Question Three

- a) State the major difference between each of the following:
 - i) Text box and a Label
 - ii) List box and a Combo box
[4 marks]
- b) Define the term control structure.
[2 marks]
- c) You are requested to write a short program that will be used in a school to calculate the average mark out of five subjects. The average mark is used to determine the grade the student gets. The grade is displayed by use of a message box dialog. The grading system is shown in the table below

MARK	GRADE
0-49	Fail
50-64	C
65-74	B
75-100	A

- ii) Sketch the graphical user interface assigning the appropriate properties [2 marks]
- iii) Write the code for your program [8 marks]
- d) Explain briefly the following data types as used in visual basic
 - i) Single
 - ii) Currency
 [4 marks]

Question Four

- a) Write a simple code that performs each of the following
 - i) Change the background colour of a label to blue when the form is clicked
 - ii) Produce a tip when a mouse rests on a command button after running the application
 - iii) Disable a command button when a command button is clicked
 [6 marks]
- b) Explain briefly the importance of comments in a program and indicate the two ways of including comments in Visual Basic programs. [3 marks]
- c) Write a visual basic application that uses the RND and RGB functions to generate colours randomly after an interval of time. The generated colour is displayed in a picture box control. Design your GUI. [6 marks]
- d) By use of a text box, and a command button, write code in the click event of the command button so that when a character is entered into the text box, it determines whether the character is a vowel or a consonant by displaying a suitable message. Design your GUI. [5 marks]

Question Five

- a) Briefly explain the significance of a menu in an application. [2 marks]
- b) i) Explain how you would produce the following menu in an MDI form

<u>A</u>pplications	<u>W</u>indows
<u>E</u>xit	<u>T</u>ile <u>H</u>orizontal
	<u>T</u>ile <u>V</u>ertical

Use the format below

Menu Item	Name Property	Caption Property	No. Of Times To Indent

[6 marks]

- iii) Write the codes to be tied to the Tile Horizontal menu items to enable the user to tile vertically the MDI child forms. **[4 marks]**
- c) By use of a horizontal scrollbar, label, picture box and command button controls, write a program that accepts the temperature in Fahrenheit using horizontal scrollbar control. Your program should indicate current value of the horizontal scrollbar control in a label control and should be in the range of between 0 and 150. The program then converts and displays the value of the temperature in Celsius using a picture box control, after a click of a command button. Design your graphical user interface. Use the following formula for conversion:

$$Celsius = 5/9*(Fahrenheit-32)$$

[10 marks]