



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF
SCIENCE IN SOFTWARE ENGINEERING**

SIT 103 – VISUAL PROGRAMMING

DURATION: 2 HOURS

DATE: 17/4/2019

TIME: 9-11 A.M.

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Visual Programming languages have an Integrated Development Environment (IDE) that provide most of the component tools required by a programmer in his/her software development tasks. Briefly explain the functionality of the following visual Basic IDE components.

- i. Tool box
- ii. Properties window
- iii. Project/solution Explorer
- iv. Form layout window
- v. Code window

(10 marks)

b) Information required for each and every student in a university database include the following six data items: registration number, name, date of birth, gender (male/female), number of units enrolled for and the amount of money to pay for the entire academic year. In a VB application program, state the MOST appropriate VB data type for each of the variable to be assigned EACH of these data items. GIVE a reason for each of your choices.

(6 marks)

c) The figure below depicts a VB application program GUI that receives two numbers for the user. When the user clicks the COMPARE NUMBERS button; if the numbers are equal, the feedback: “The numbers are equal” is displayed in the results text-box and if they are not equal the feedback message (e.g. “Num is greater than N Num 2”) is accordingly displayed in the results test- box-on clicking the clear button content in all text-boxes is accepted.

YOUR TWO NUMBERS	
Num 1:	<input type="text"/>
Num 2:	<input type="text"/>
Results:	<input type="text"/>
<input type="button" value="COMPARE NUMBERS"/>	<input type="button" value="CLEAR"/>

For the intended purpose to be accomplished, you are required to write an Event procedure for EACH of the buttons. (Use appropriate naming conventions for all the variables and the GUT controls). (7 marks)

- d) Write an Event procedure that implements a FOR loop and input dialog box to prompt the user for TEN numbers, calculates their SUM and average, and display those number with their sum and average in a picture-box named picOutput. (7 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

2. (a) Explain each of the following terms as used in a VB environment. (10 marks)
- i. Event
 - ii. Event drivers Programming
 - iii. Project
 - iv. Control
 - v. Option Explicit
- (b) The GUI shown below was designed to capture the present value (P value) of vehicle, the annual rate® of depreciation, and the time duration (n) in years from the user. The program then calculates and displays the vehicles future value (f value) at the end of the specified time duration. (The guiding formular is $f \text{ Value} = P \text{ Value} (1 - r/100)^2$)

Future value Calculator		-	X
			<input type="text"/>
Present Value (ksh)	<input type="text"/>		
Depreciator rate (%) p.a:	<input type="text"/>		
Number of years:	<input type="text"/>		
<div>CALCULATE FUTURE VALUE</div>			

Write an Event procedure for the Calculate future value button to perform the task when the button is clicked (Use appropriate naming conventions for all the variables and the GUI controls?)
(10 marks)

QUESTION THREE (20 MARKS)

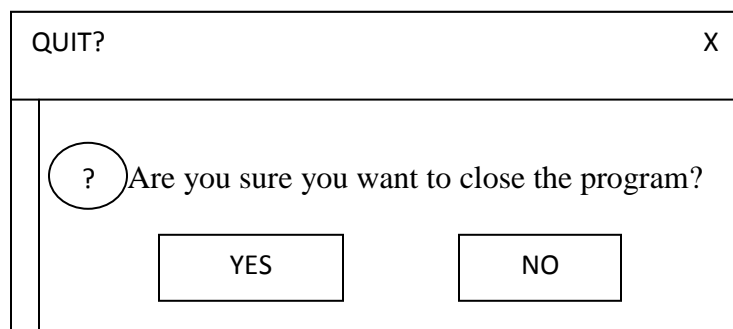
a) In a visual application design, adding a professional touch via the properties of controls is an important and desirable aspect. Describe the effect of each of the following control properties and elements with respect to GUI appearance and interactability with the application user.
(10 marks)

- i. Border style property
- ii. Accept Button property
- iii. Cancel Button property
- iv. Keyboard Access Keys (Hot keys)
- v. Tooltip property

b) Describe an appropriate situation under which each of the following controls may be used
(4 marks)

- i. Checkbox Controls
- ii. Radio Button controls

c) Sometimes an application user may accidentally click the EXIT/CLOSE button of an application program. It is therefore wise to provide the application with a facility like the dialogue box shown below so as to allow the user to confirm his/her intention.



Write an Event procedure of the application EXIT/CLOSE button that will trigger the popping – up of the above dialogue Box.
(6 marks)

QUESTION FOUR (20 MARKS)

- a) With respect to visual Basic differentiate between a syntax error and a semantic/ logical error and a sematic/logical error AND give an example of each. (4 marks)
- b) With the aid of diagrams, explain the logical and functional differences between DO WHILE and DO LOOP UNTIL structures as used in VB environment. (6 marks).
- c) Write a program that uses text-boxes to accept a student's cat, assignment and exam scores that are marked out of 20, 10 and 70 respectively. The program calculates the total score and implements a select case structure to assign a letter grade and an order-of-merit as per the grading scale shown below. The poxigram should also display the name of the students, ALL his/her three scores and order-of-merit in a picture-box named picResults. (10 marks)

TOTAL SCORE %	LETTER GRADE	ORDER OF MERIT
70-100	A	Distinction
60-69	B	Credit I
50-59	C	Credit II
40-49	D	Pass
Below 40	F	Fail