MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2020/2021 ACADEMIC YEAR

FIRST YEAR SEMESTER **TWO** EXAMINATION FOR, BBIT,BIT,BSE,BSCS&BSCT

UNIT CODE: SIT103

UNIT TITLE: VISUAL PROGRAMMING

DURATION: 2 HOURS

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 (COMPULSORY) **(30 MARKS)**

a) Briefly explain the following visual basic IDE components (10 marks)

i. Tool box
ii. Properties window
iii. Project explorer
iv. Form layout
v. Code window

b) Choose the most appropriate VB data type to store the following values. Explain why your choice is the most appropriate.

i. A student registration number
ii. The amount of money paid as fees by students
iii. The number of students enrolled in a certain college.
iv. The interest rate charged if the account goes overdrawn to an accuracy of two decimal places.
v. The name of a student.
vi. The number of students enrolled in all the colleges and universities in Kenya.
vii. The date a student was admitted.
viii. Whether a student is a male or not. (4 marks)

c) With the aid of diagrams describe the behaviour and the difference between a Do while….LOOP and a DO….LOOP UNTI structures. (8marks)

d) Describe a situation under which checkbox controls and radio buttons may be used in an application program. (4marks)

e) with aid of an example differentiate one dimensional and two dimensional arrays (4marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

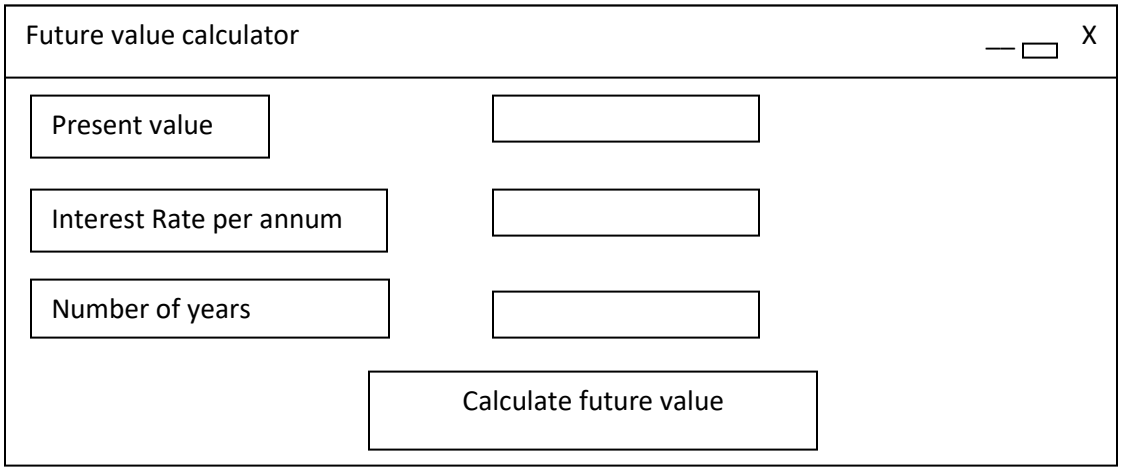
QUESTION TWO (20 MARKS)

a) Explain each of the following terms as used in VB.Net environment:
   i. Event driven programming
   ii. Events
   iii. Project
   iv. Control
   v. Option explicit (10marks)

b) The GUI shown below was designed to capture the present value (pvalue) of a vehicle, the annual rate(r) of depreciation, the time duration (n) in years from the user and calculates and displays its future value (fvalue) at the end of the specified time duration. Study it and

develop an event procedure that performs the task. The calculation of the depreciation is based on the reducing balance method whose algebraic expression is

fvalue=pvalue(1-r/100)^{n}. (10marks)



QUESTION THREE (20 MARKS)

a) Explain the following terms with respect to application programming:

i. Call by value

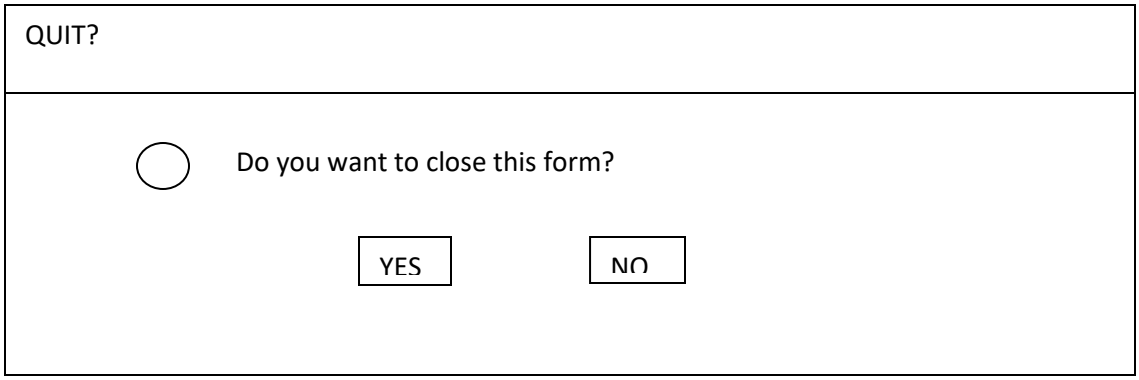
ii. Call by reference (4marks)

b) Analyse the following phrase with respect to the underlined terms:

"VB.Net is both a compiled and an interpreter-event-driven high level language. (8marks)

c) Sometimes an application user may accidentally click the Exit button of an application and it is therefore wise to provide the application with a facility like the dialog box shown below. Study it and develop an event procedure of the exit button that triggers the dialog box.

(8marks)



QUESTION FOUR (20 MARKS)

a) With respect to classes and procedures distinguish between a variable scope and a variable lifetime. (4marks)

b) An elaborate application program is required, it should accept from the user the radius and height of a solid cylinder via two text-boxes, calculate, and display both the volume and the total surface area of the cylinder respectively. The output should be via two label controls on clicking a push-button control.

(Hint: Algebraically v=πr^2h and SA=2πr^2h+2πrh)

i. Sketch a diagram of an appropriate GUI you would design for this program.(2marks)

ii. Write an event procedure for the click button. (8marks)

c) Describe the ordered steps to follow when creating VB.Net database application program.(Assume an Ms Access database linking.) (6marks)