MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

CODE 2920/205: VISUAL PROGRAMMING

DATE: 3/9/2021   **TIME: 8:30-11:30 AM**

Instructions:

Answer question any **FOUR** questions

Don't write on this question paper

QUESTION ONE

a) State the appropriate data type for a variable used to store each of the following in a visual basic program:

   i.   The height of a student in cms;

   ii. The number of students in a class;

   iii. The academic grade of a student;

   iv. Country status, whether rich or poor.   (4 marks)

b) Write a visual basic program that would prompt a user to enter the dimensions in meters of a colleague's rectangular playing field through the use of text boxes, the program should then compute the area covered by the playing field in hectares and display it through a massage box. Attach the code to a command click event. Hint: 1 hectare = 10000 square meters.   (6 marks)

c) Explain each of the following components of a visual basic program:

   i.   Method;

   ii. Event procedure;

   iii. Module.   (6 marks)

d) Distinguish between *implicit* and *explicit* declaration as used in a visual basic programming language.   (4 marks)

QUESTION TWO

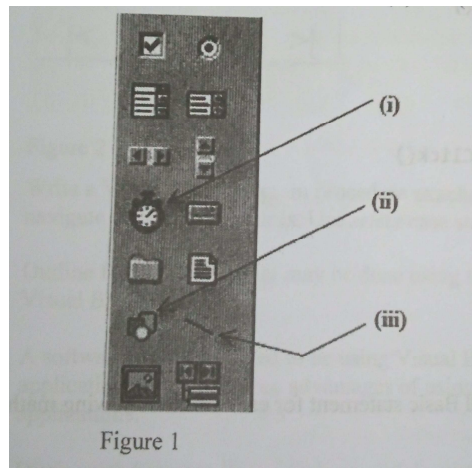a) The surface area of a sphere is obtained using the formulae:

$$A=4\pi r^2$$

Where π is a mathematical constant 3.14 and r is its radius. Write a program in Visual Basic that accepts a radius from a textbox then computes the surface area. The program should then display the area on a picturebox control. Attach the code to a command button. (6 marks)

b) A software company opted to be using Visual Basic programming to develop applications. Explain **three** advantages of using this language to develop desktop applications. (6 marks)

c) Describe the function of each of the following in an integrated Development environment in visual basic:

    a. Toolbox;

    b. Properties Window;

    c. Project window;

    d. Code editor window. (8 marks)

QUESTION THREE

a) Figure 1 shows a section of a toolbox window in a visual basic program. Explain the function of the controls labeled i to iii. (6 marks)

Figure 1

b) Explain why it is advisable to use a byte data type instead of an integer data type to store a value that is less than 100. (2 marks)

c) Describe **three** advantages of using control arrays as used in visual Basic. (6 marks)

d) Distinguish between checkbox and option button as used in visual basic programs.
(4 marks)

e) A student preceded the name of a command button with an ampersand (&) symbol. Outline the purpose of the ampersand. (2 marks)

QUESTION FOUR

a) Figure 1 shows a visual Basic window at designed time. Use it to answer the questions that follow.

Write Visual Basic programs attached to a command click that will;

i. Change the font color and font style of the value 'Mike' to red and italic respectively (2marks)
ii. Clear all the texts in the text boxes. (2 marks)
iii. Add the following values to the combo box:
Kenya, Uganda, Tanzania, Sudan (3marks)

iv. Change the font size and background color of the information in the combo box to 18 and green respectively. Use a *with statement*. (3 marks)

b) With the aid of an example, distinguish between the *name property* and the *caption property* as used in a visual basic program. (4 marks)

c) State the property that could be used for the output in each of the following Visual basic controls.
i. Textbox
ii. Label
iii. Picture box
iv. Combo box (4 marks)

d)   Explain giving a reason why it is important to set Autosize property of a picture box to true when designing programs in visual basic.   (2 marks)

QUESTION FIVE

a)   The length of the hypotenuse of a right angled triangle is given by the formula $c = \sqrt{a^2 + b^2}$ where a and b are the perpendicular sides and c is the hypotenuse. Write a visual basic program that would accept the values of a and b through the use of text boxes, compute the hypotenuse and display the results on a message box.   (6 marks)

b)   Distinguish between *user defined* and *system defined* constants as used in Visual Basic programming.   (4 marks)

c)   State the prefix used for each of the following visual basic controls:

   i.   Combo box;
   ii.   List box;
   iii. Vertical scroll bar;
   iv.   Form.   (2 marks)

d)   The table below shows various visual basic controls and their associate properties, explain the function of each of the properties.   (6 marks)

Control Name	Properties
Command Button	Default
	Tool Tip Text
CheckBox	Value
	Visible
Picturebox	Autosize
	picture

e)   State whether or not each of the following visual basic variable names are valid justifying your answer in each case:

   i.   Registration number;
   ii.   2Hello_world;   (2 marks)