

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

CHUKA & THARAKA CAMPUSES

FIRST YEAR EXAMINATION FOR THE AWARD OF CERTIFICATE IN COMPUTER SCIENCE

COSC 00107: APPLICATION PROGRAMMING

STREAMS: CERT. COMP SCI Y1S2

TIME: 2 HOURS

DAY/DATE: FRIDAY 8/08/2019

8.30 A.M - 10.30 A.M.

CANDIDATES' INSTRUCTIONS

- Answer question one and any other two from section B
- Do not write on this paper

SECTION A {COMPULSORY}

QUESTION ONE (30MKS)

QUESTION ONE (30MARKS)

- a) Explain the function of the following windows that are found in VB.NET (6 marks)
- Solution Explorer.
 - Properties window
 - Form Designer window.
- b) Explain the following methods as used in arrays in VB.NET (2 marks)
- Unbound
 - Lbound.
- c) Explain any **three** types of variables scope (6 marks)
- d) Outline the difference between a function and a sub-routine in VB.NET (3 marks)
- e) A program is required to calculate the area and circumference of a circle when the radius is fed inside a textbox named txtRadius. The area and the circumference are displayed in the labels LblArea and LblCircumference respectively. Using memory variables .Write some code in visual basic to perform the above task (5 marks)

f) Name any **three** events in VB.NET (3 marks)

g) State the standard prefix for each of the following data types (5 marks)

- i. Double
- ii. Boolean
- iii. Currency
- iv. Variant
- v. Byte

SECTION B: ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20MARKS)

a) Chuka university wants you to develop a program which allows a user to input the employee name, employee basic salary, allowances and tax deduction. The gross salary is made up of both the basic salary and allowances. The tax is computed based on the following :ksh0 to ksh 10,000(15%).ksh 10,001 to ksh 20,000(25 %),ksh 20,001 to ksh 30,000 (20%) above ksh 30,000(30%). Sketch the interface of the program (3 marks)

b) When the calculate button is clicked your program should display the gross salary, tax paid and net salary (7 marks)

c) Write a visual basic program that enables a user to input the radius of a circle, the program would then display the circle's diameter, circumference and area (10 marks)

Use the following formulas (r is the radius): diameter= $2r$, circumference = $2\pi r$; area= πr^2

NB: Figure below shows a case where the user inputs 10 as the radius and clicks on the Calculate button

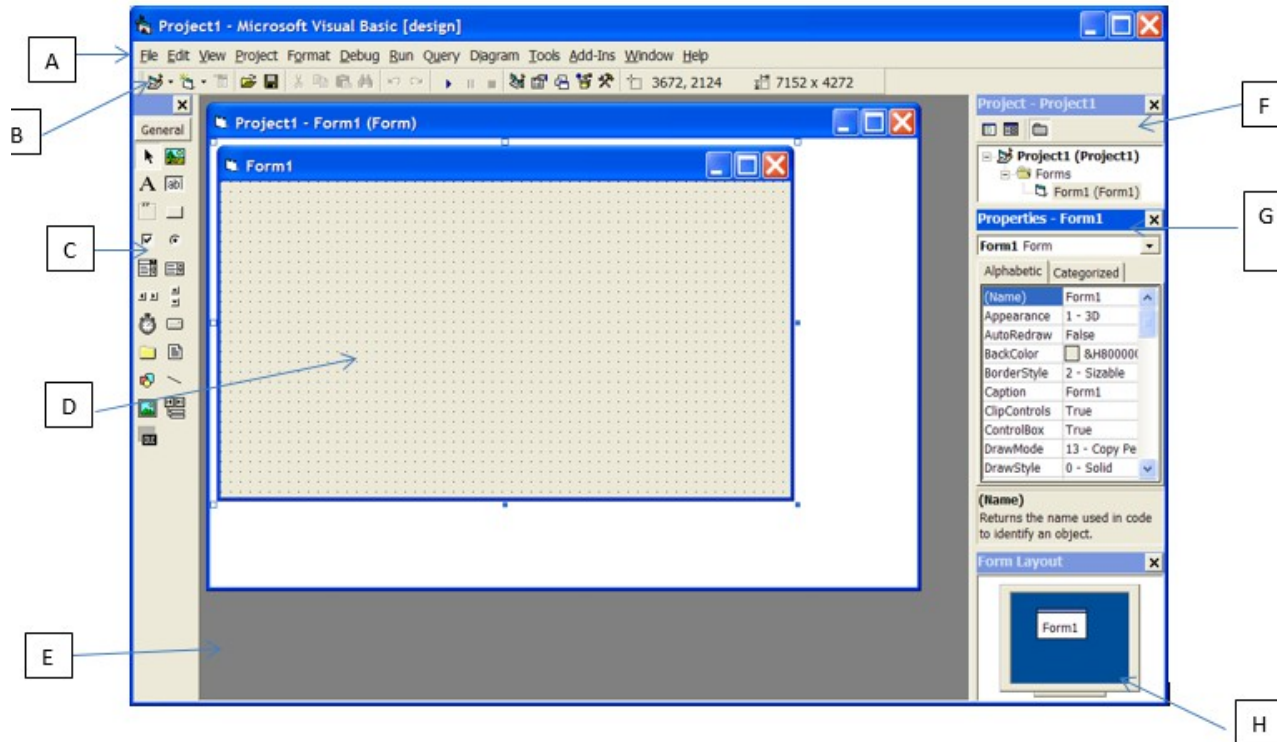
The screenshot shows a graphical user interface with the following elements:

- A label "Enter circle radius:" followed by a text box containing the value "10".
- A "Calculate" button to the right of the text box.
- Below the text box, there are three more text boxes, each with a label to its left:
 - The first text box is labeled "Diameter:" and contains the value "20".
 - The second text box is labeled "Circumference:" and contains the value "62.831853071795".
 - The third text box is labeled "Area:" and contains the value "314.15926535897".

QUESTION THREE (20 MARKS)

Identify each of the following parts of a Visual Basic Screen.

(8 marks)



a) Identify any THREE variables in the Visual Basic code below:

(6 marks)

```
Private Sub cmdCompute_Click()
picResults.Cls speed = 50
timeElapsed = 14
distance = speed * timeElapsed
picResults.Print distance
distance = 410
timeElapsed = distance / speed
picResults.PrinttimeElapsed
End Sub.
```

b) Explain the difference between each of the following widgets:
(6 marks)

(6 marks)

- i. List box
- ii. Combo box

iii. Check box

QUESTION FOUR (20 MARKS)

a) The table below shows a grading system used by a primary school to analyse students internal examination results .use it to answer the question that follows.

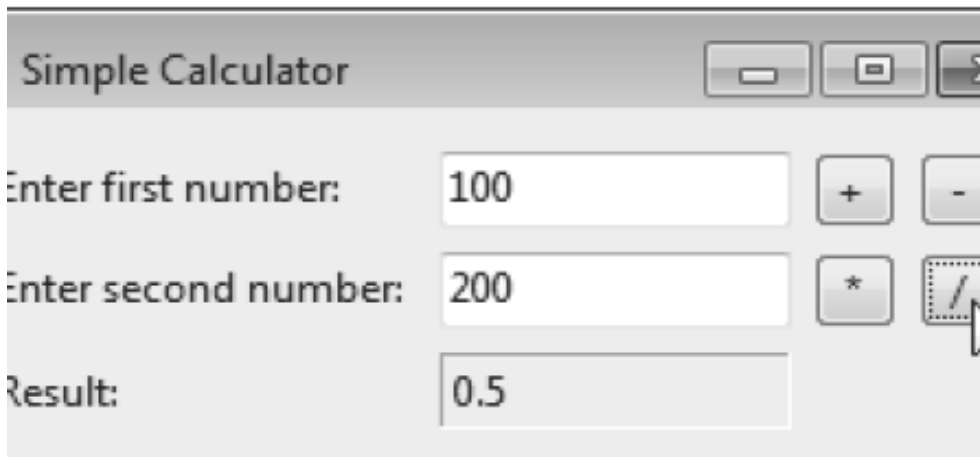
Average	Grade
75-100	A
65-74	B
55-64	C
45-54	D
Less than 45	F

Write a visual Basic program that accepts five values through the use of inputbox function .the program should then determine the average and its appropriate grade .The average and grade should be displayed on a form.use if...else if...else statement. **(7 marks)**

b) Write Visual basic code that displays the text “Hello World” on a form **(5 marks)**

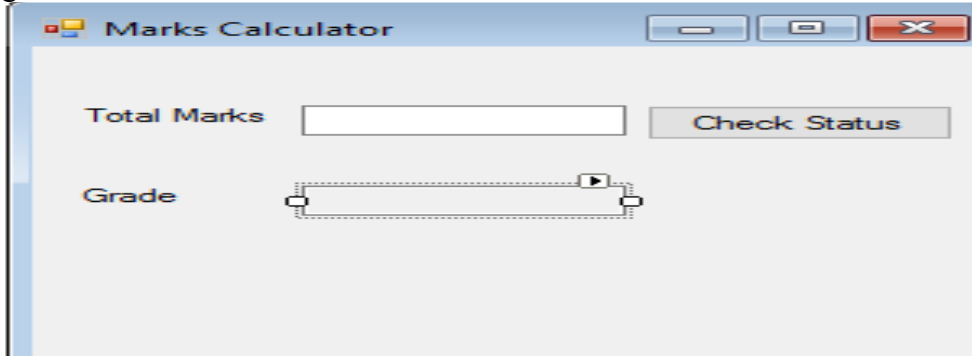
c) The figure below shows a sample of simple calculator, write a visual basic program that would produce such a calculator, with two textboxes to allow the user to input two numbers, four buttons that would enable for Addition, Subtraction, Multiplication and Division operations, the answer to any of the operations should be displayed on the label **(8 marks)**

NB: Simple calculator showing Division operation



QUESTION FIVE (20 MARKS)

- a) Distinguish between run-time error and logic error as used in visual basic programming (4 marks)
- b) Using the form below, write a program that would enable a teacher to input the marks and get the grade as “PASS” if the marks are 50 and above otherwise “FAIL” (6 marks)



- c) Suppose the grades are as follows: Amend your program to the “Check Status” button to handle the below, you need to ensure the teacher doesn’t input a mark beyond 100 (10 marks).

- “A” for exam marks greater than or equal to 90 and below 100.
 - “B” for exam marks in the range 80-89.
 - “C” for exam mark in the range 70-79.
 - “D” for exam mark in the range 60-69 and
 - “F” for all other marks.
-