

UNIVERSITY OF FORT HARE

ELEMENTARY COMPUTER PROGRAMMING  
CSC 121

DEGREE EXAMINATION

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Time: 3 Hours

Subject: CSC 121

Marks: 100

This paper consists of 4 pages including the cover page

Internal Examiners

Mr. W. T. Vambe  
Mr. E. Chindenga

Internal Moderator

Mr. S. Dyakal Ashe

**INSTRUCTIONS**

- There are two Sections in this examination, each with three (3) questions, answer all questions.
- Write neatly and clearly.
- Number your answers correctly as indicated on each question.
- Read the question carefully before you attempt to answer.
- Full marks will be awarded to candidates who provide full answers, where necessary.
- Full credit will be given for 100 Marks.



- c) Private Sub Button1\_Click() Handles Button1.Click  
 Dim x, y As Integer  
 For x = 1 To 3  
 For y = 1 To x  
 Console.Write(y)  
 Next  
 Console.WriteLine()  
 Next  
 End Sub [2]
- d) Write the following program using a For loop: [3]  
 Dim m, n As integer  
 m = 3  
 n = 20  
 Do Until m > n  
 If m Mod 2 = 1 Then  
 ListBox1.Items.Add(m)  
 End If  
 m = m + 2  
 Loop

### Question Three (20)

- 3.1 Write a program that changes the background colour of Form1 to blue. [2]  
 3.2 A car consumes 7.6 litres of diesel for every 100km. Write a program that will read the number of litres from a textbox and prints out the number of kilometres the car will travel using those litres. Use a **While...End While** loop [4]  
 3.3 The surface area of a cylinder is calculated as follows,  $SA = 2\pi r^2 + 2\pi rh$  where  $\pi = 3.143$ , r is the radius of the cylinder and h is the height of the cylinder. Write a program that reads the radius and the height of the cylinder from two textboxes and calculates the surface area of the cylinder. [4]  
 3.4 A whole number is called prime if it has exactly two factors. For example, 7 is prime because it has only two factors, 1 and 7. Write a function called Prime which takes in an integer and checks whether it is a prime number or not. Also write a main program which reads an integer from a textbox prints out whether it is a prime number or not using the function. [6]  
 3.5 Initially, R10000 is placed in a savings account. Interest is earned at a rate of 7% per year and, at the end of each year, an extra R1000 is placed in the account. Write a program that calculates the number of year it will take for the balance to reach R25000 [4]

## Section B [50]

### Question one (16)

1. State any two (2) functions that can be used to format number in Visual Basic. [2]
2. What is the use of the function Chr? [1]
3. Write a single line of code that will do the following: [4]
  - a. Set the font type to "Courier New" and size to 12 of the font variable font\_value.
  - b. Print out the size of the array called 'numbers'.

- c. Declare a string array for 6 items.
  - d. Print the ASCII code of "a".
4. Write a program that reads a string from a textbox and prints out how many times each letter appears in the string. [6]
  5. What will be printed by the following program? [3]
- ```

Private Sub Button1_Click() Handles Button1.Click
    Dim value As Font
    Dim fmtStr As String = "{0, -10}{1, 12}{2, 14}{3, 14}"
    value = New Font("Courier New", 14)
    ListBox1.Font = value
    ListBox1.Items.Clear()
    ListBox1.Items.Add(String.Format(fmtStr, "College",
    "Enrollment", "Endowment", "Public SS"))
    ListBox1.Items.Add(String.Format(fmtStr, "Harvard", 6660,
    19.2, 0.659))
    ListBox1.Items.Add(String.Format(fmtStr, "Walden", 5278,
    10.1, 0.532))
End Sub

```

### Question Two (20)

1. A file called "nums.txt" contains an unknown number of integers. Write a program that will read the integers into an array and then go through the array printing: [8]
  - a. All even numbers.
  - b. The average of all the numbers.
  - c. All number divisible by both 3 and 4.
2. Write a program that emulates 50 tosses of a coin and writes each outcome to a file called "coin\_toss.txt". [6]
3. An array called 'words' contains 100 words. Write a program that searches for the word "function" and print out the outcome of the search. [6]

### Question Three (14)

1. Write a single line of code that will create a red pen with size 15. [1]
2. Write a program that will draw the string "CSC 121" in blue on a picture box starting at (30, 35). [4]
3. Write a program that draws a rectangle with a length of 90 and a width of 60. [3]
4. The table below shows the budget of a household. Write a program that displays the given information on a pie chart: [6]

| Household Budget |            |
|------------------|------------|
| Groceries        | R4 000.00  |
| Bills            | R10 000.00 |
| Savings          | R6 000.00  |