Fomenky's

UNIVERSITY OF BUEA	COLLEGE OF TECHNOLOGY
COURSE CODE CEC 213	INSTRUCTOR: MEGOZE
CREDIT VALUE: 4	TIME ALLOWED: 2 HOURS
FIRST SEMESTER 2019	DATE: 20/02/2019

ALGORITHM 6 MARKS

1. Design a flowchart with a dual alternative decision structure that assigns 0 to the integer variable numberOne if the integer variable counter is less than 10. Otherwise it would assign 77 to the variable numberOne, in both cases you have to print the value of numberOne. 3 marks

2. Draw a structured flowchart or write structured pseudocode describing how to study for an exam. Include at least two decisions and two loops. 3 marks

DEBUGGING 7 MARKS

1 Find the error in the following pseudocode

```
PRINT " Enter the length of the room : "
INPUT  length
Declare Integer length
```

3.5 **MARKS**

2. The following code will not display the results expected by the developer. Can you find the error?

```
Declare Real lowest, highest, average
PRINT "Enter lowest, highest score: "
INPUT lowest
INPUT highest
Set average = low + high / 2
PRINT "The average is ", average
```

3.5 **MARKS**

PROGRAMMING USING C LANGUAGE 22 MARKS

Problem statement **7 marks**

Design the flowchart from the given algorithm below to find the reverse number **number1** and check whether it is a **palindrome** It is " **a word, phrase, or sequence that reads the same backwards as forwards, e.g. madam or nurses run**" or not. Implement a C program for the developed flowchart that takes an integer as input and outputs the reverse of the same with suitable messages. Example: **number1:** 121 Reverse: 121, it is a palindrome.

step 1 : start
step 2 : input the number
step 3: make a copy of the number
step 4: initialise the value of the reverse
step 5: reverse the given number
while (number is different from zero)
remainder = number modulo 10
number = number divides 10
reverse = reverse times 10 + remainder
end while
step 6:check if the given number is a palindrome
if (copy of the number equals to reverse)
Display "given number is a palindrome"
else
Display "given number is not a palindrome"
end if
step 7 : End

Problem statement 2 **15 marks**

1. Write a program that computes and displays the product of a collection of even numbers entered interactively until a sentinel value of 99 is entered. 5 marks
2. Rewrite the program segment that follows, using a for loop:
   product = 1; i = 0;
   while (i < n) { scanf("%d", &a);
   if (a != i) product *= a;
   ++i; } 5 marks
3. Write a do-while loop that repeatedly prompts for and takes input until a value in the range 0 through 15 inclusive is input. Include code that prevents the loop from executing forever on input of a wrong data type. 5 marks