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Mid-term Exam

## Part I

1/ In this course both lecture and lab class, I learned about how to write Algorithms, variable, string function, operation, loop, decision making, place holder, switch case, coding, .... . Algorithm is a step by step of processing <sup>wrong</sup> language for solve problem. Syntactic error mean that Algorithm grammar and semantic error mean that wrong Algorithm meaning.

2/ Variable is a place holder of value. we need variable to store the value and make program read value and execute or do operation. List 4 variable type: integer, float, character and sequence of character. List 3 rules for name a variable:

- begin with character uppercase or lowercase doesn't matter
- Can't begin with symbol except underscore "\_"
- No space but can use underscore instead.

3/ . strlen : tell the number of character of string  
• strlwr : Convert string to lower case  
• strcmp : compare two string  
• strrev : reverse the string  
•strupr : covert string to upper case

4/ decision making is a control flow of structure that decide which statement should run according to condition that set. we need it when we want the program run the statement that condition true. If (condition) then

```
statement;  
else If (condition) then  
statement;  
else then  
statement;  
end If
```

5/ loop is the structure of code that make the code run repeatedly. loop important because it can save the space of coding, save time, save memory of user and computer. Give 3 type of loop : For loop while loop and do... while loop. Give and algorithm

```
Var i : Integer  
Begin  
  For (i ← 2020; i ≥ 1975; i ← i - 1) do  
    write(i, " ")  
  end For  
End
```



## Part II

1/ output: c c 100

### 2/ Decision making

a/ output: 4 is an even number

b/ output: 2 is an even number  
3 is an odd number

### 3/ loop

a/ output: 1 2 3 4 5 6 7

b/ output: 7 8 9 10 11 12 13 ----

### Part III

1/ write algorithm to check number

Var  $i$  : integer

Begin

write("Plz input a number: ")

read( $i$ )

If ( $i \geq 0$ ) then

write("Natural number")

else if ( $i \bmod 2 \neq 0$ ) then

write("Positive number")

else then

write("Negative number")

end If

End

---

2/ write algorithm to do simple encryption.

Var text : sequence of characters.

$i, n$  : integer

Begin

writeln("Plz input a text:")

read(text)

$n = \text{length}(\text{text})$

For ( $i \leftarrow 0$ ;  $i \leq n$ ;  $i \leftarrow i + 1$ ) do

next(text[ $i$ ])

write(text[ $i$ ])

end For

End



37 write an algorithm to display summation and average of all entered numbers.

Var  $i, \text{sum}, n$  : Integer

Begin  
    average : Float

$\text{sum} \leftarrow 0$

$n \leftarrow 0$

    while (1) do

        write ("Enter a number: ")

        read (i)

        If ( $i == -1$ ) then

            break

        end If

$\text{sum} \leftarrow \text{sum} + i$

$n \leftarrow n + 1$

    end while

$\text{average} \leftarrow \text{sum} / n$

    write ("The summation is :", sum)

    write ("The average is :", average)

End