

أسئلة برمجة للمراجعة (الفصل الأول)

Short Answers

(1) What is a Computer Programming?

Creating a sequence of instructions using any programming languages to enable the computer to do something, written by programmers.

(2) What is a Programming Language?

It is a special language used to write computer programs.

(3) What is Pseudo Code?

Pseudo Code is an informal language to help programmers for developing algorithms

(4) State the Levels of Programming Languages.

1. High-level
2. Low-level
3. Executable Machine

(5) Give examples of programming languages?

- Visual Basic.
- C#.
- C, C++.
- Java.
- Python.
- PHP.
- JavaScript.

(6) What are the elements of a programming language?

- Keywords (Reserved Words).
- Operators.
- Variables.
- Syntax.
- Statements.
- Procedures.
- Comments (Remarks).

(T/F)

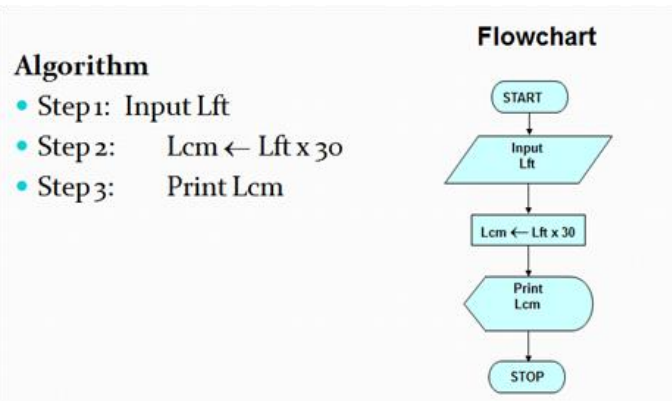
In problem solving phase, we create a general algorithm then a detailed algorithm	T
In problem solving phase, we can implement the program in some programming language	F
The sequence of steps that describe solution of problem is called an algorithm	T
The operator "AND" is a Boolean operator that returns True when the operand is False and returns False when the operand is True	F
Flowchart is a graphical representation of the sequence of operations in an information system or program	T
The expression $A > B$ is a logical expression	T
Relational operator ($<$) means "greater than or Equal to"	F
Relational operator (\neq) means "Not equal to"	T
Relational operator (\leq) means "less than or Equal to"	T
In flowchart, the diamond denotes a decision	T
In flowchart, the rectangle denotes an output operation	F
In flowchart, the oval denotes the beginning or end of the program	T
In flowchart, the hybrid denotes an input operation	F
Pseudo Code is an informal language to help programmers for developing algorithms	T

Applications

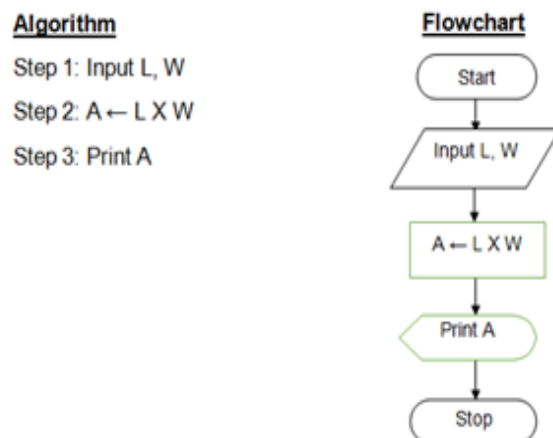
- (1) Write an algorithm to determine a student's final grade and indicate whether it is passing or failing. The final grade is calculated as the average of four marks.

```
Step 1:  Input M1,M2,M3,M4
Step 2:  GRADE ← (M1+M2+M3+M4)/4
Step 3:  if (GRADE < 50) then
           Print "FAIL"
         else
           Print "PASS"
        endif
```

- (2) Write an algorithm and draw a flowchart to convert the length in feet to centimeter.



- (3) Write an algorithm and draw a flowchart that will read the two sides of a rectangle and calculate its area.



(4) Write an algorithm and draw a flowchart that will calculate the roots of a quadratic equation

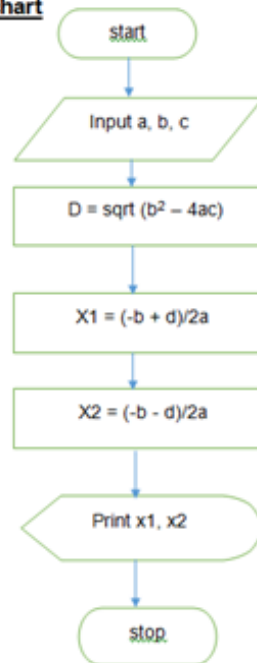
Hint: $d = \sqrt{b^2 - 4ac}$, and the roots are:

$$x_1 = \frac{-b + d}{2a} \quad \text{and} \quad x_2 = \frac{-b - d}{2a}$$

Algorithm

- Step 1: Input a, b, c
- Step 2: $d = \sqrt{b^2 - 4ac}$
- Step 3: $x_1 = \frac{-b + d}{2a}$
- Step 4: $x_2 = \frac{-b - d}{2a}$
- Step 5: Print x1, x2

Flowchart

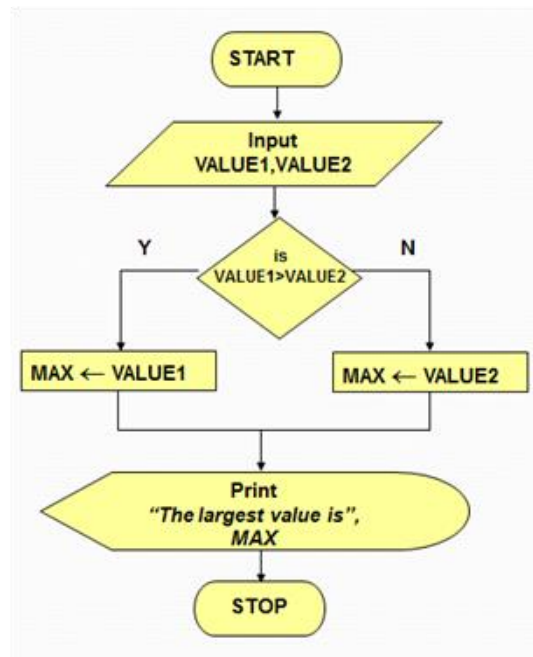


(5) Write an algorithm and draw a flowchart for a program that reads two values, determines the largest value and prints the largest value with an identifying message.

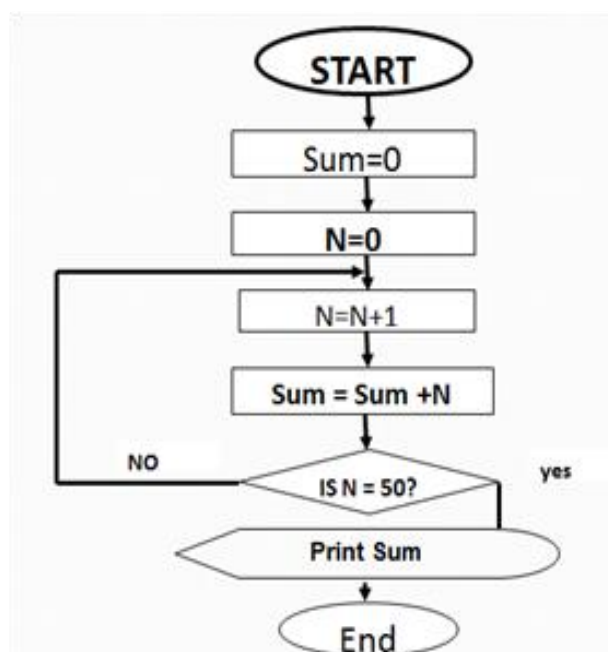
Algorithm

```
Input VALUE1, VALUE2
if (VALUE1 > VALUE2) then
    MAX ← VALUE1
else
    MAX ← VALUE2
end if
Print "The largest value is", MAX
```

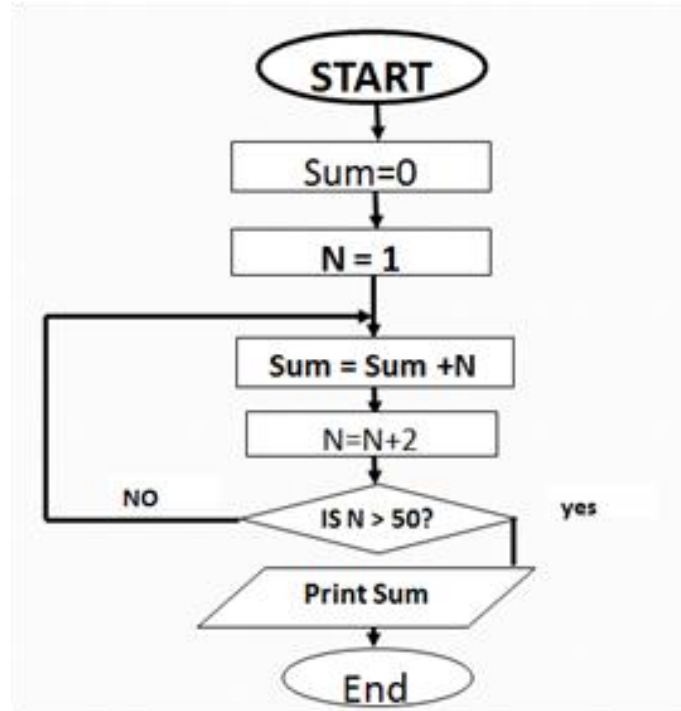
Flowchart



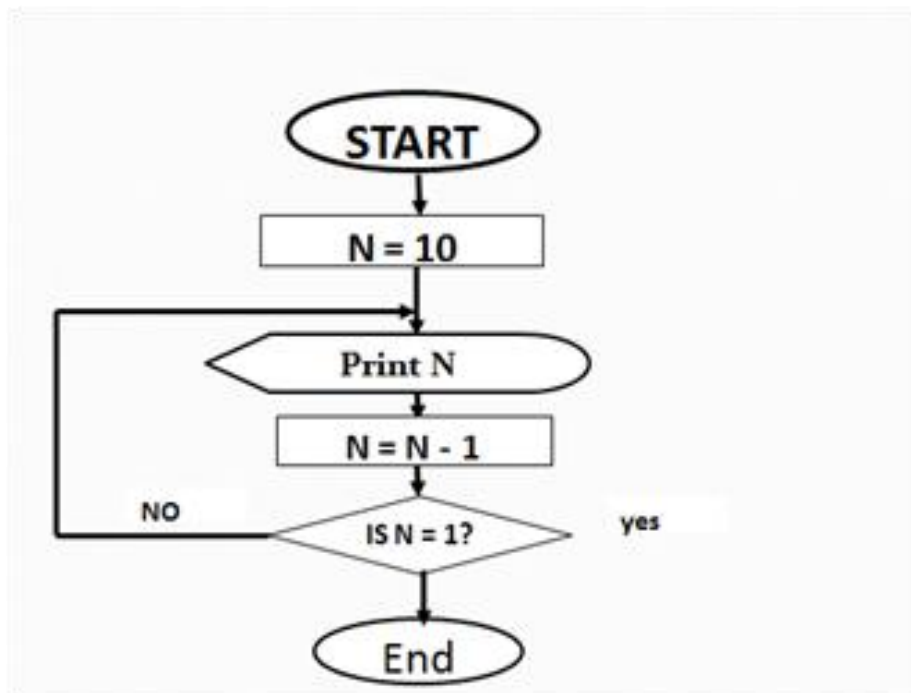
(6) Draw flowchart to find the sum of integer numbers from 1 – 50 by using (Loop).



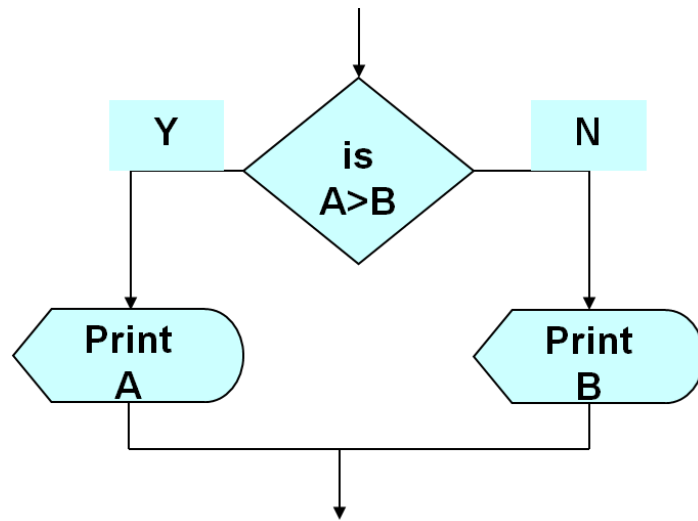
(7) Draw flowchart to find the sum of the odd numbers from 1 – 50.



(8) Flowchart to allow the user to print 10,9,8,.....,1



(9) Write the algorithm for the following flowchart



Algorithm

```
If A > B then  
  print A  
else  
  print B  
endif
```
