

4.Landfilling

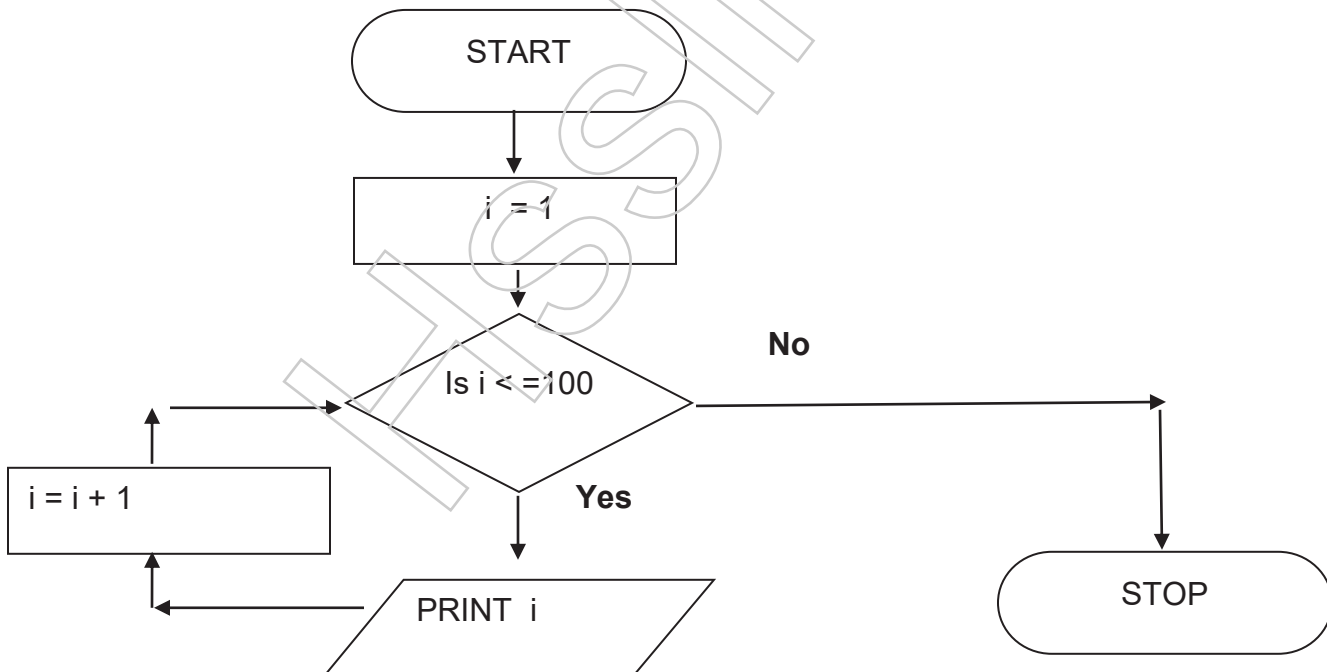
Recycling of e-waste is the most effective disposal method as the amount of e - waste is rising. It should reduce its impact on environment and human health.

4 – Principles of Programming and Problem Solving

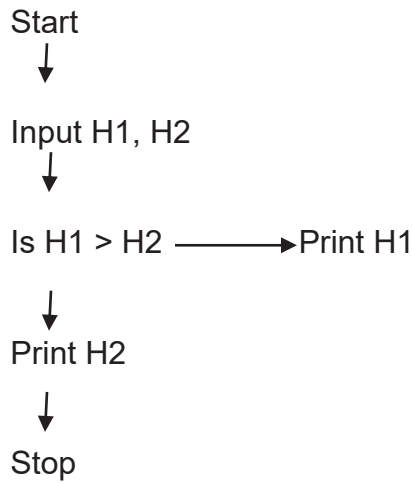
1. The process of correcting errors in program is called _____ [March 2020, Score 1]

Ans. Debugging

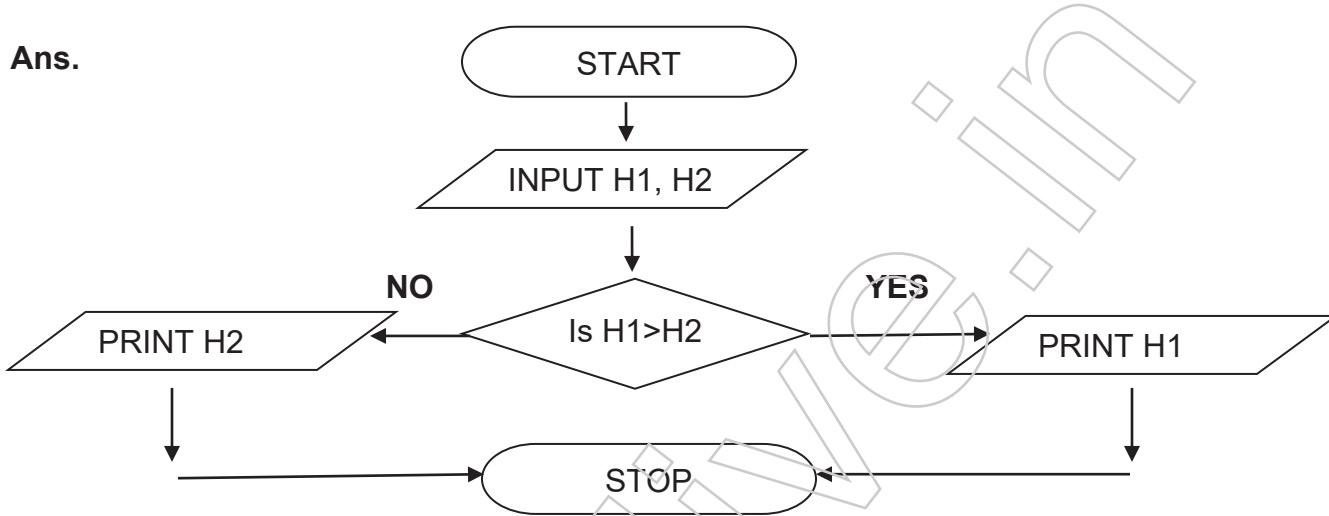
2. Draw the flowchart for printing numbers 1 to 100 [March 2020, Score 3]



3. Use the proper symbols to complete the flowchart given below: [July 2019, Score 3]



Ans.



4. Define the following terms : (a) Syntax Error (b) Algorithm (e) Debugging

[July 2019, Score 3]

Ans. a) Syntax error : Syntax error occurs due to incorrect use of program statement. For example: undefined variable, incorrect words etc.

b) An algorithm is a finite sequence of instructions to solve a problem. It is a step by step procedure to solve a problem

c) The process of detecting and correcting errors is called debugging. There are two types of error, Syntax error and Logical error.

5. What is the use of Rhombus symbol in flowchart?

[March 2019, Score 1]

Ans. For decisions or conditions.

6. Name the steps involved in problem solving.

[March 2019, Score 3]

Ans. 1. Problem identification

2. Algorithms and flowcharts.

3. Program Coding
4. Translation
5. Debugging
6. Execution and testing
7. Documentation

7. Write an algorithm to find the sum and average of three numbers. [July 2018, Score 2]

Ans. Step 1 : Start
Step 2: Input three numbers a, b, c
Step 3: Sum = a + b + c
Step 4 : Avg = sum /3
Step 5: Output Sum , Avg
Step 6: Stop

8. a) Program written in HLL is known as [July 2018, Score 1]

b) What is the need of documentation for a program? [July 2018, Score 2]

Ans. a) Source code

b) Documentation helps in debugging a program as well as program modification. It contains the procedure for installing and using the program.

9. a) What is an algorithm? [July 2018, Score 1]

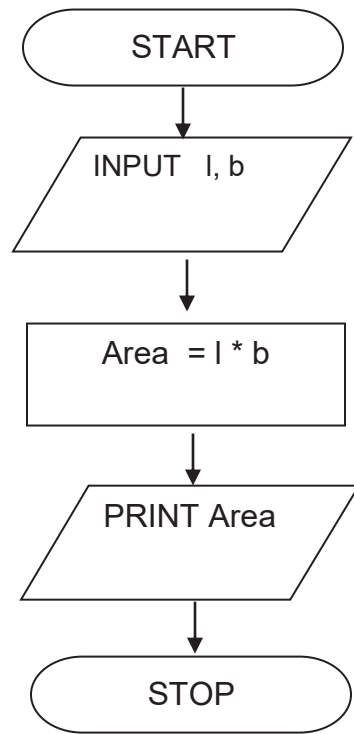
b) Distinguish between logical error and syntax error in a program. [Score 2]

Ans. a) An algorithm is a finite sequence of instructions to solve a problem. It is a step by step procedure to solve a problem.

b) Syntax error occurs due to incorrect use of program statement. For example: undefined variable, incorrect words etc. Logical error is an error in planning the logic of a program.

10. Draw a flow chart to find area of a rectangle. [March 2018, Score 2]

Ans.



11. a) Draw a flow chart for the following algorithm.

[March 2018, Score 3]

step 1 : Start

step2 : $N=1$

step3 : print N

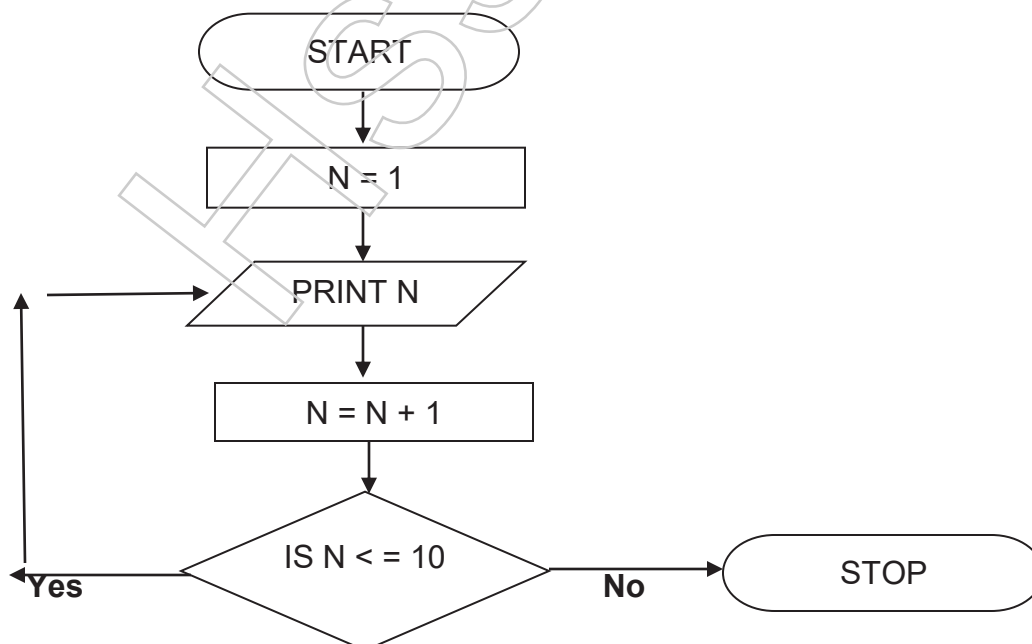
step 4 : $N=N+1$

step 5 : if $N \leq 10$ Then Go To step 3

step 7 : Stop

b) When we implement the above algorithm in C++, what will be the output?

Ans. a)



a) 1 2 3 4 5 6 7 8 9 10

12. Which one of the following statements is INCORRECT?

[July 2017, Score 1]

- a) Syntax error occurs due to violation of rules of the programming language.
- b) Incorrect punctuation is an example of syntax error.
- c) Language processors detect syntax error during translation.
- d) Language processor translates source code into machine code even if syntax error is present in the program.

Ans. d) Language processor translates source code into machine code even if syntax error is present in the program.

13. Write an algorithm to check whether a given integer is even or odd

[July 2017, Score 2]

OR

Draw a flow chart to compute average of three numbers

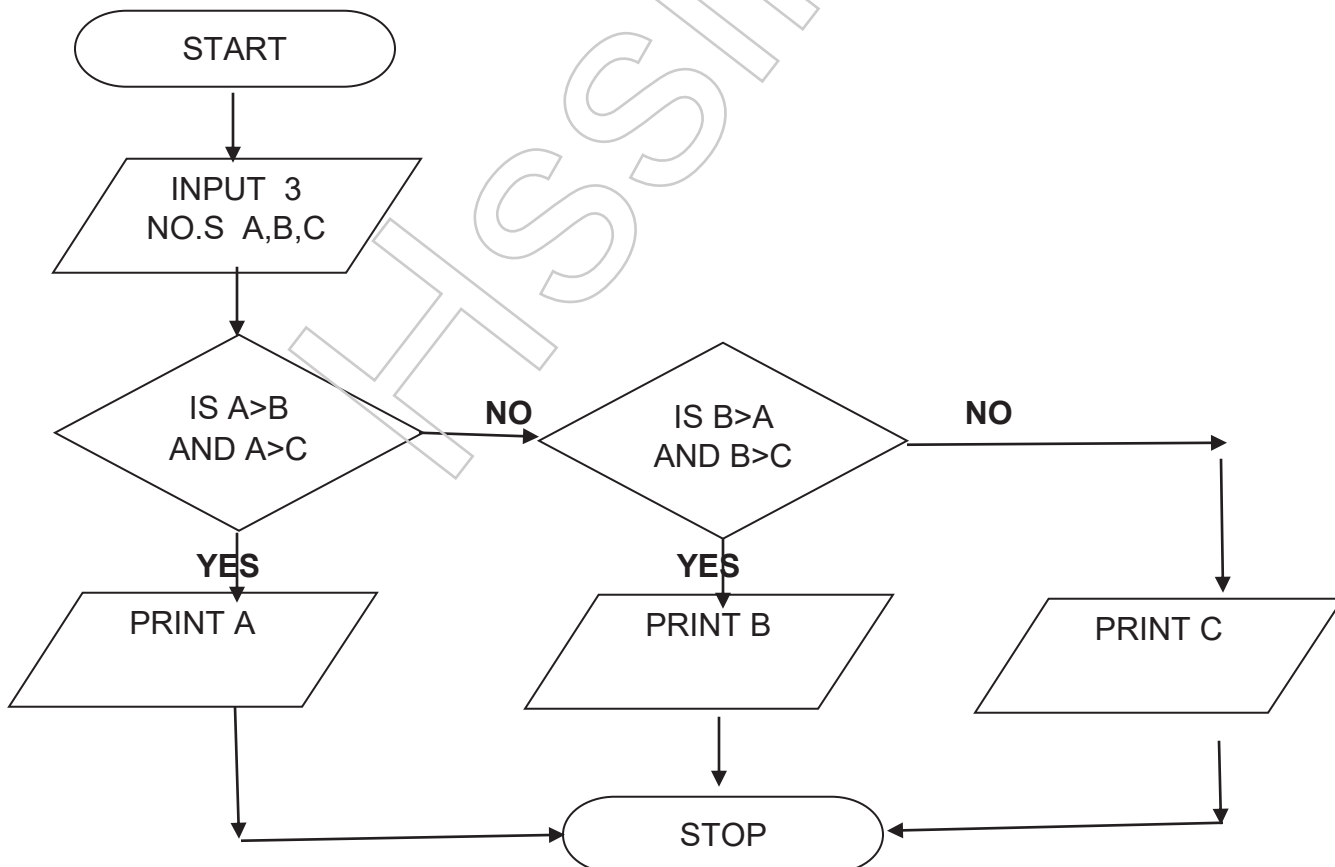
Ans. Step 1 : START

Step 2 : INPUT A NUMBER, N

Step 3 : IF $N \text{ MOD } 2 = 0$ THEN PRINT " EVEN "

Step 4 : ELSE PRINT "ODD"

Step 5 : STOP



14. Write the different types of program documentation with their importance

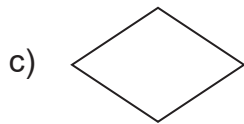
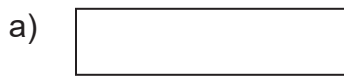
[July 2017, Score 3]

Ans. This is the last step in programming. Writing comments in source code is called internal documentation. It helps in debugging and program modification later.

Another form of documentation is preparing user manual. They are hard copy documents and are called external documentation. It contains the procedure for installing and using the program.

15. Pick the odd one out and give a reason for your finding:

[March 2017, Score 1]



Ans. c) Only Rhombus has one input line and two output lines.

16. Write an algorithm to print the numbers up to 100 in reverse order. That is, the output should be as 100, 99, 98, 97, 1

[March 2017, Score 2]

OR

Draw a flow chart to check whether the given number is positive, negative or zero.

Ans. Step 1: START

Step 2: LET $i = 100$

Step 3: PRINT i

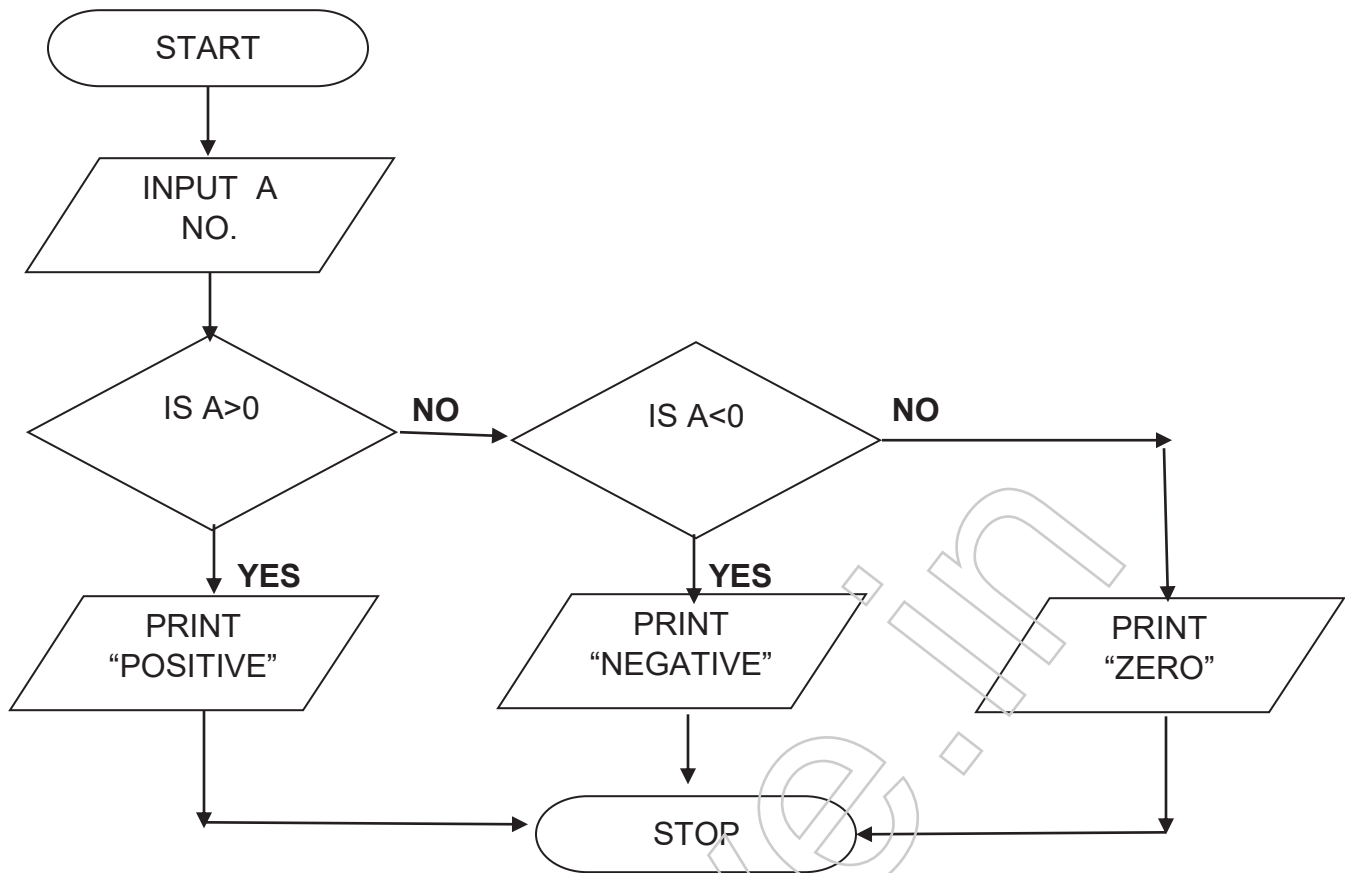
Step 4: $i = i - 1$

Step 5: IF $i >= 1$, GO TO STEP 3

Step 6: ELSE GO TO STEP 7

Step 7: STOP

OR



17. It is better to give proper documentation within the program. Give reason.

[March 2017, Score 3]

Ans. Documentation helps in finding errors and program modification. Documentation is of two types: Internal documentation and external documentation. Internal documentation helps in debugging a program as well as program modification. External documentation contains the procedure for installing and using the program.

18. Which one of the following errors is identified at the time of compilation? [July 2016, Score 1]

- a) Syntax error b) Logical error c) Run-time error d) All of these

Ans. a) Syntax error.

19. Consider the following algorithm and answer the following questions:

Step 1: Start

Step 2: $N = 2, S = 0$

Step 3: Repeat Step 4, Step 5 while $N \leq 10$

Step 4: $S = S + N$

Step 5: $N = N + 2$

Step 6: Print S

Step 7: Stop

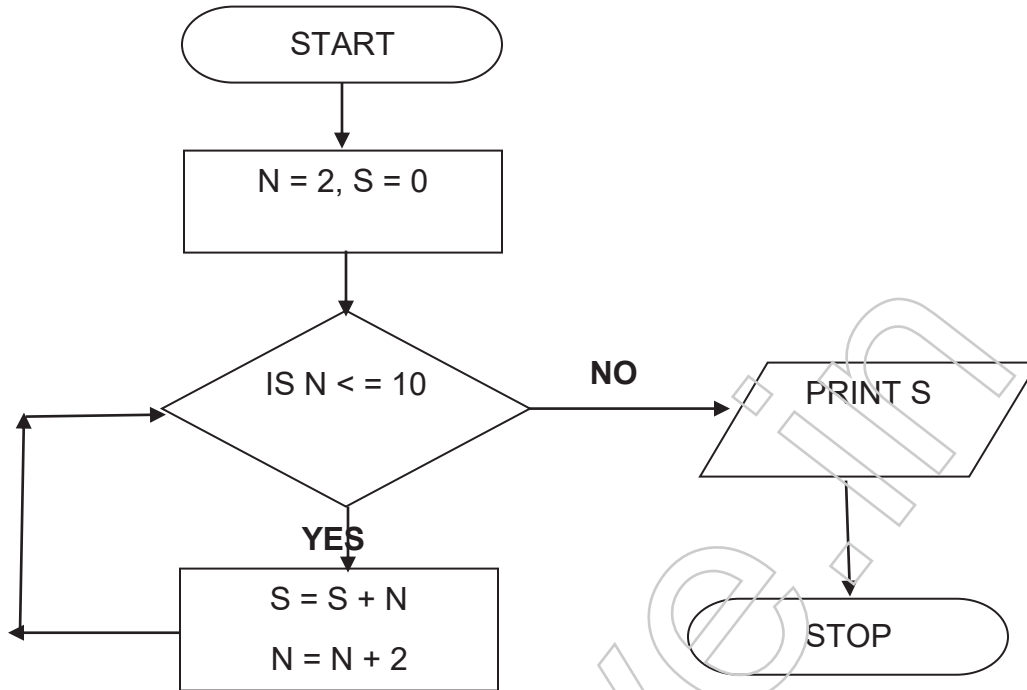
- a) Predict the output of the above algorithm.
 b) Draw a flowchart for the above algorithm.

[July 2016, Score 1]

[Score 2]

Ans. a) 30. (2 + 4 + 6 + 8 + 10)

c)



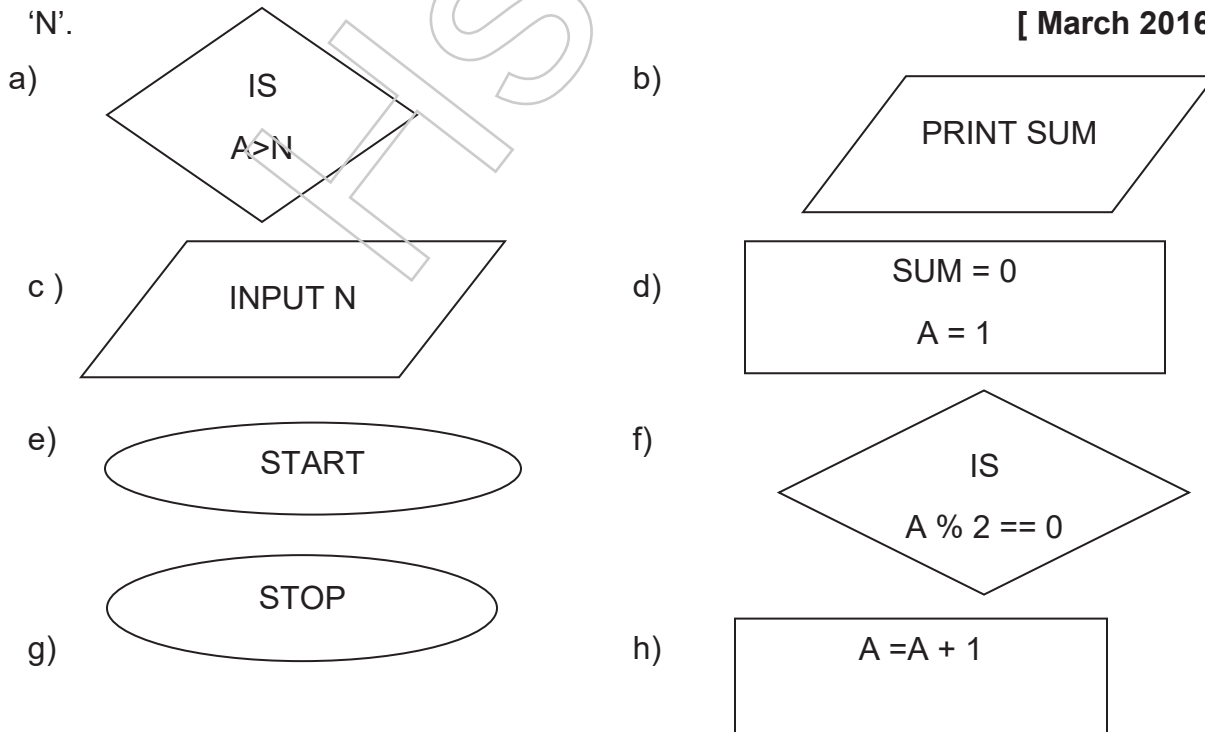
20. Ramesh has written a C++ program. During compilation and execution, there were no errors. But he got a wrong output. Name the type of error he faced.

[March 2016, Score 1]

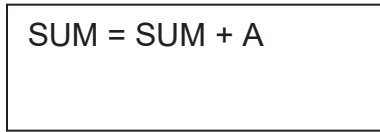
Ans. Logical error.

21. Make a flow chart using the given labelled symbols, for finding the sum of all even numbers up to 'N'.

[March 2016, Score 3]



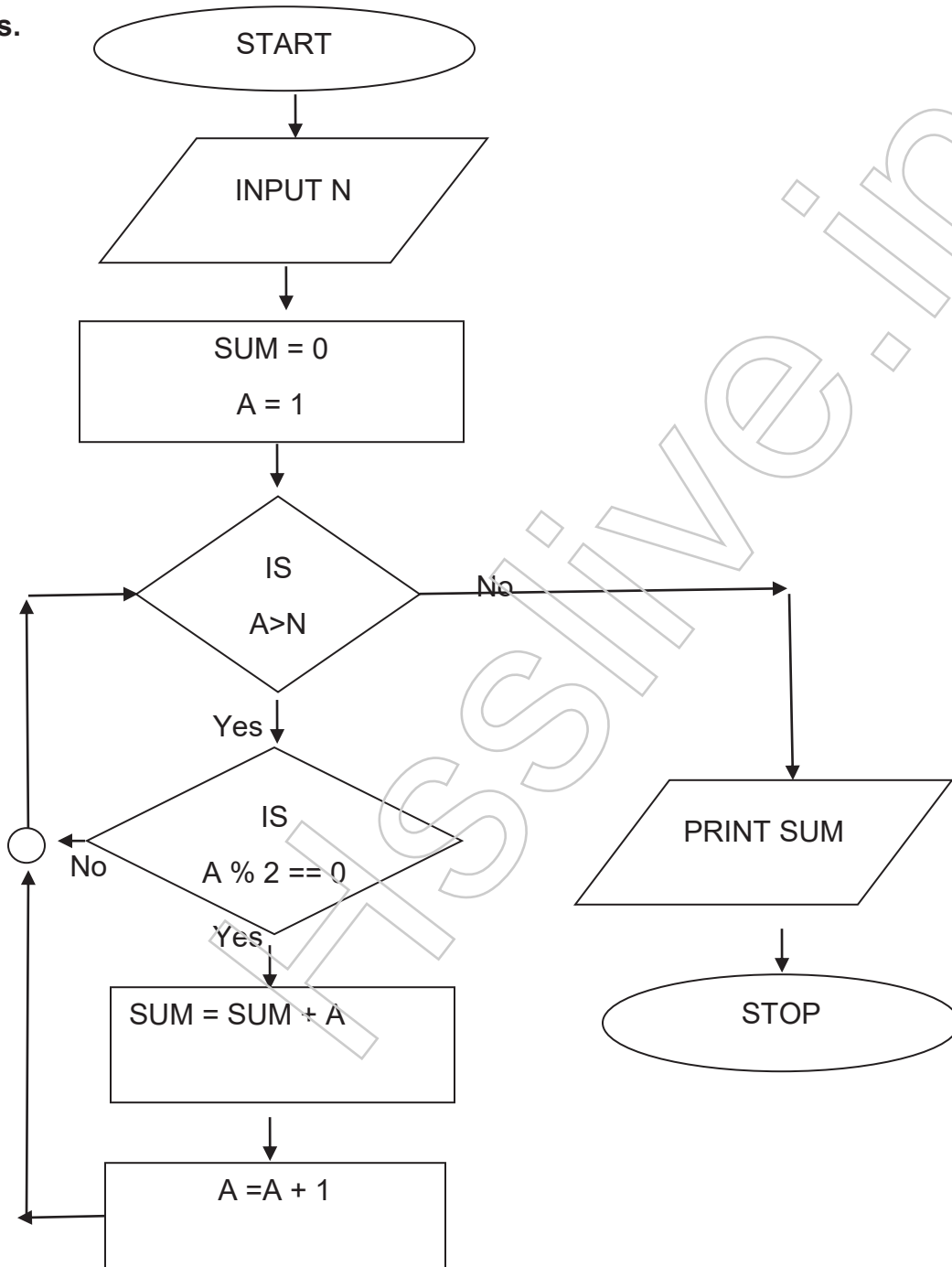
i)



OR

Write an algorithm to accept an integer and print the factors of it.

Ans.



OR

Step 1: START

Step 2: INPUT A NUMBER , N

Step 3: LET $i = 2$

Step 4: Repeat Steps 5 and 6 Until $i \leq N / 2$

Step 5: IF $N \text{ MOD } i = 0$ THEN PRINT i

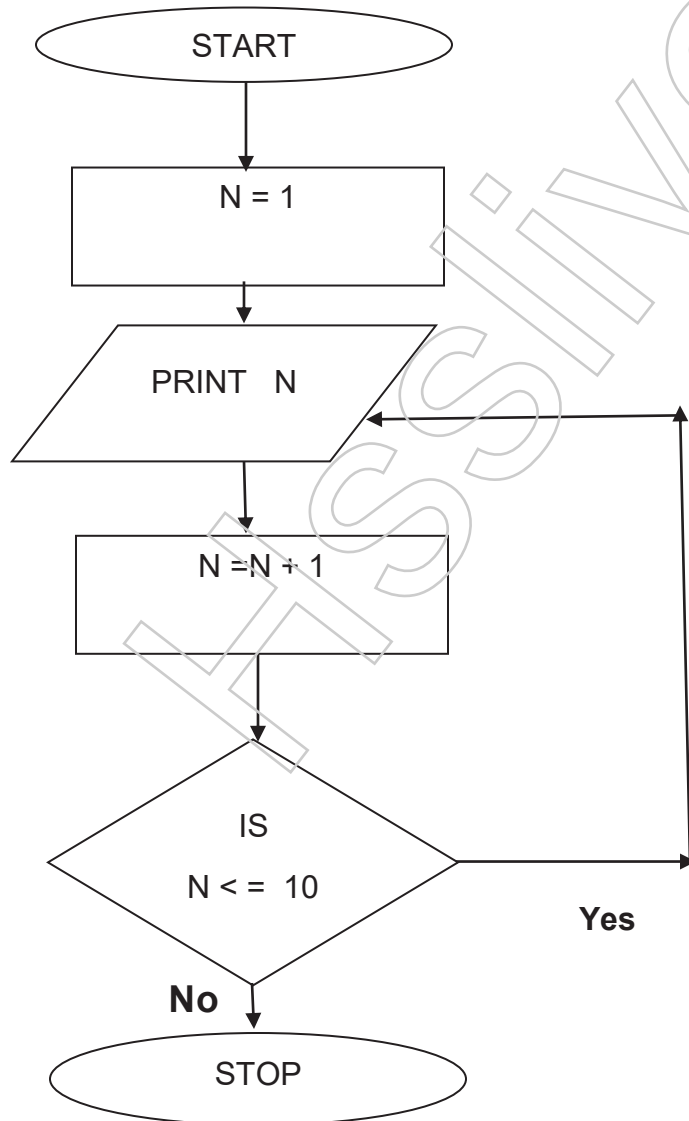
Step 6: $i = i + 1$

Step 7: STOP

22) Write an algorithm to input the scores obtained in three-unit tests and find the average score.

[July 2015, Score 2]

OR



Explain the flowchart and predict the output.

Ans. Step 1: Start

Step 2: Input marks in three subjects m_1, m_2, m_3

Step 3: $\text{Sum} = m_1 + m_2 + m_3$

Step 4: Print Sum

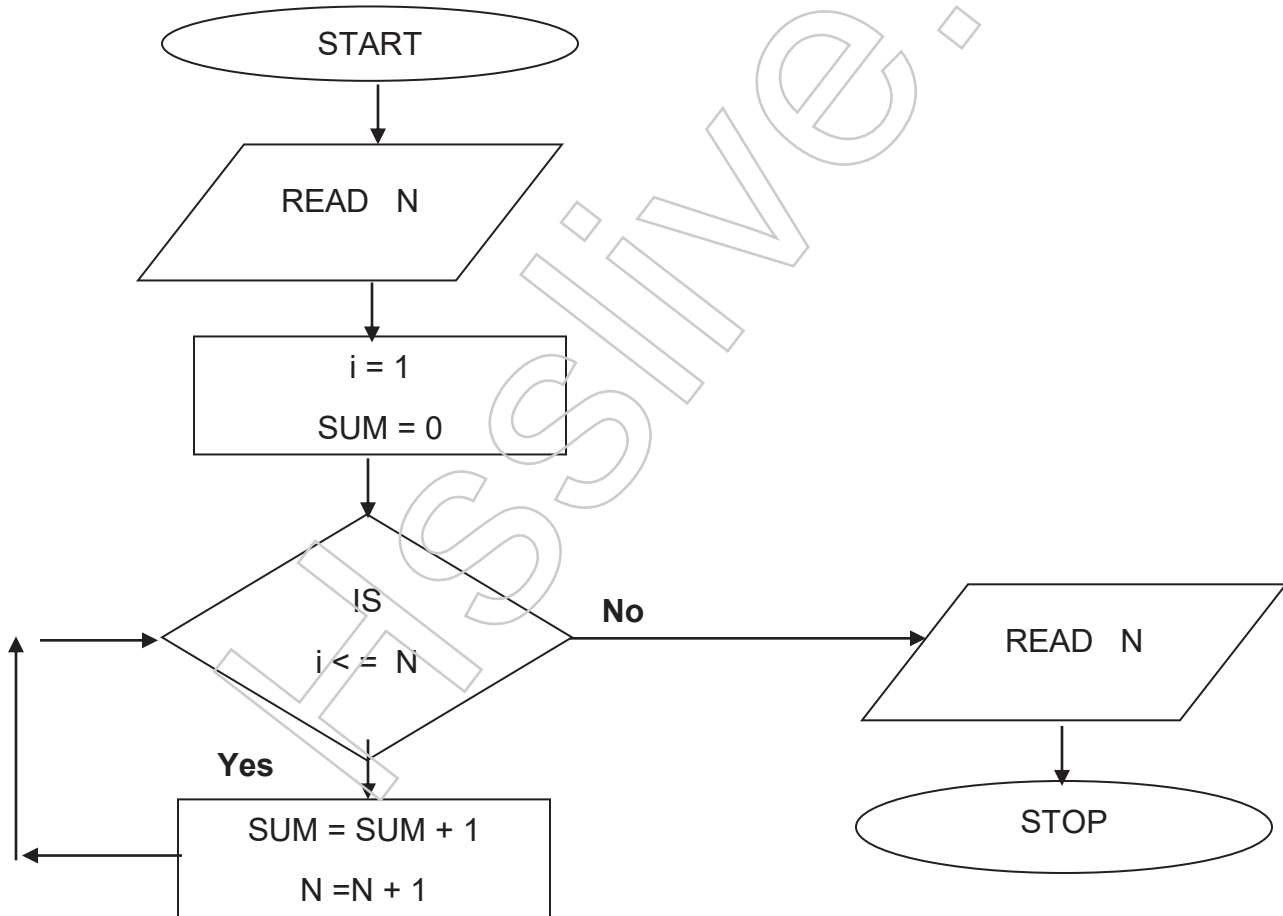
Step 5: Stop

OR

This flow chart displays the natural numbers up to 10. The variable N is initialised with 1 and its value is repeatedly displayed and incremented until 10.

The output will be 1 2 3 4 5 6 7 8 9 10

23. Draw the flow chart to find the sum of first N natural numbers. [July 2015, Score 3]



24. is the stage where programming errors are discovered and corrected.

[July 2015, Score 1]

Ans. b) Debugging

25. Some of the components in the phases of programming are given below. Write them in order of their occurrence. **[March 2015, Score 1]**

- a) Translation
- b) Documentation
- c) Problem identification
- d) Coding of a program

Ans. Problem identification, Coding of a program, Translation and Debugging

26. Define the term debugging. Write the names of two phases that are included in debugging.

OR

[March 2015, Score 2]

Define the different types of errors that are encountered during the compilation and running of a program.

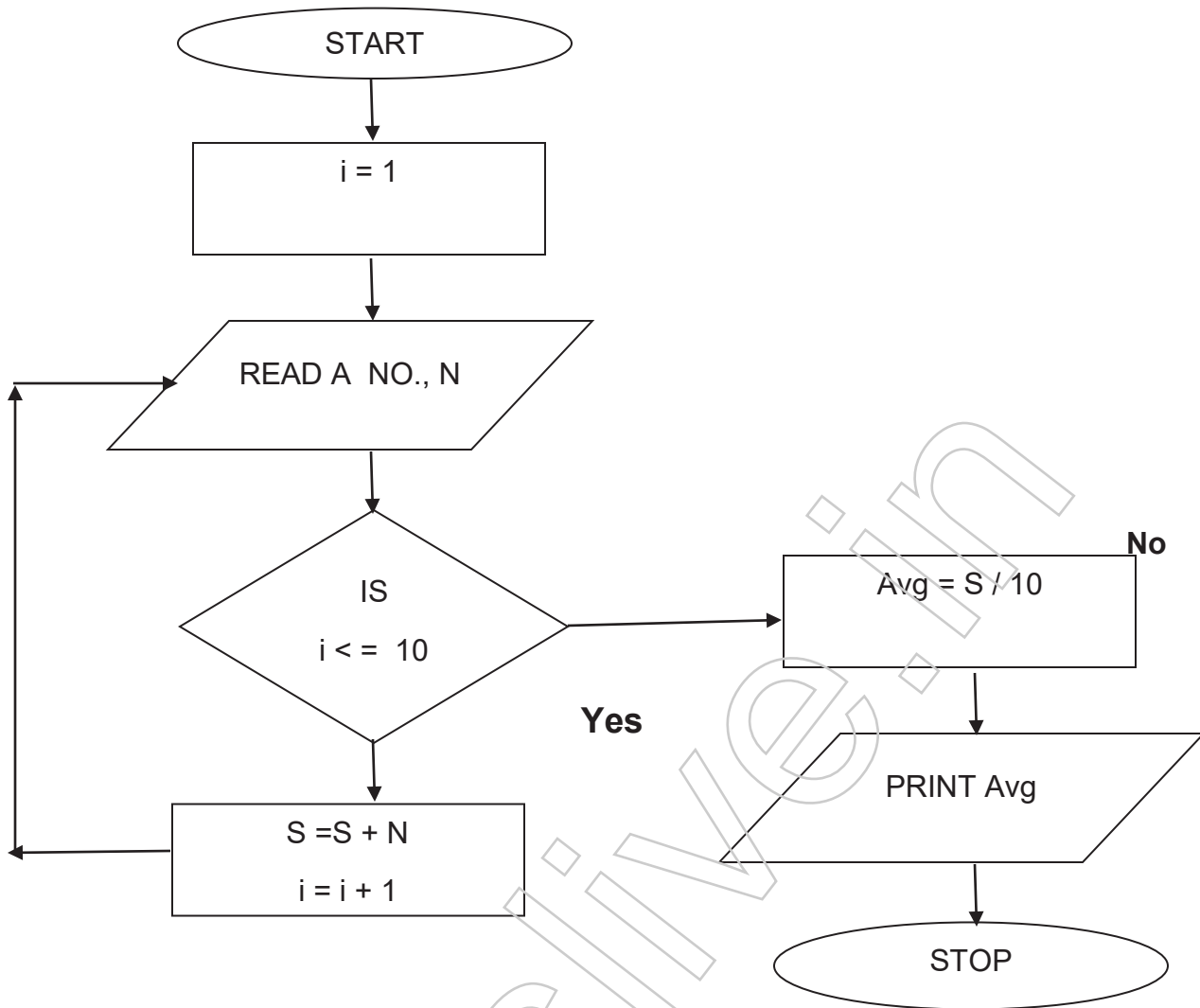
Ans. The process of detecting and correcting errors is called debugging. Programming bugs are known as bugs. Process of eliminating bugs is known as debugging. The two phases are Translation and execution.

OR

- i) Syntax error: Syntax error occurs due to incorrect use of program statement. For example: undefined variable, incorrect words etc.
- ii) Logical error: Logical error is an error in planning the logic of a program.
- iii) Run time error: Errors that occur during execution of a program are called run time errors. For example, 'Division by Zero' is a run time error.

27. Draw a flow chart to input ten different numbers and find their average. **[March 2015, Score 3]**

Ans.



Chapter 5 – Introduction to C++ Programming

1. Fundamental building blocks of the program is called _____. [March 2020, Score 1]

Ans. Tokens

2. Write the rules followed for naming an identifier. [March 2020, Score 2]

Ans.

1. Names can contain letters, digits and underscores.
2. Names must begin with a letter or an underscore (_)