

Cache memory: Cache memory is a high speed memory placed between main memory and CPU to increase the speed of execution. Frequently used data and programs are placed in the cache memory.

Secondary memory : Secondary memory is also known as auxiliary memory. It is used to store large volumes of programs and Data. Magnetic devices, Optical disks and Semiconductor devices are commonly used secondary storage. Secondary memory has a high storage capacity than Primary memory. Secondary memory is cheaper than Primary memory.

Magnetic Storage Device : Magnetic storage devices use plastic tape or disks coated with magnetic materials. Data is recorded magnetically.

Optical Storage Devices : Optical disk uses laser rays for reading and writing data. Data is written in the form of pits and lands (0 and 1) .

Flash Memory Devices : Flash Memory is an electronic non-volatile storage medium which can be electrically erased and re-programmed (EEPROM). It is used in mobile phones, digital camera etc. BIOS in PC is usually stored in flash memory.

Chapter 3 – Principles Of Programming and Problem Solving

1. Write any two limitations of flowchart? **[March 2020, Score 2]**

Ans. Flowcharts are very time consuming.

a. Any change or modification in the logic usually requires a completely new flowchart.

2. Define the following: **[March 2020, Score 3]**

i) syntax error

ii) Logical error

iii) Runtime error

Ans. 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.

ii)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.

3. Consider the following algorithm **[March 2020]**

Step 1: start

Step 2: N=1

Step 3: Print N

Step 4: N=N+1

Step 5: if $N \leq 5$ then go to step 3

Step 6: stop

i) Write the output of the above algorithm

[Score 2]

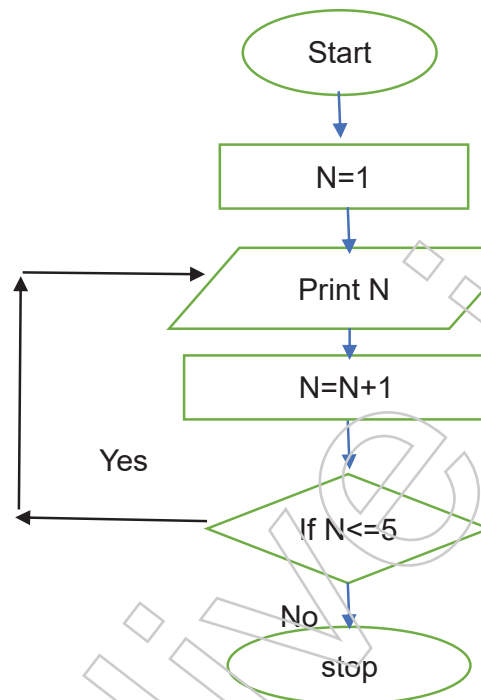
ii) Draw the flowchart of the above algorithm

[Score 3]

Ans

i) 1 2 3 4 5

ii)



4. Program written in HLL is known as

[July 2019,Score 1]

Ans. Source program

5. Draw the flowchart for the algorithm given below

[July 2019,Score 3]

Step1: start

Step 2: Input A, B

Step3 : If $A > B$ then

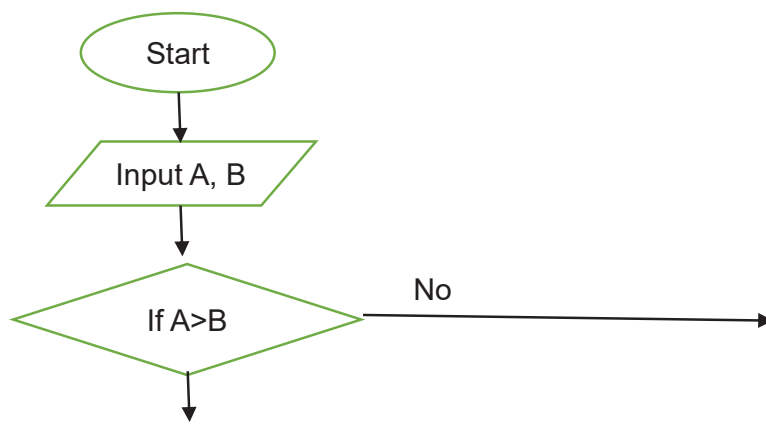
Step 4: Print A

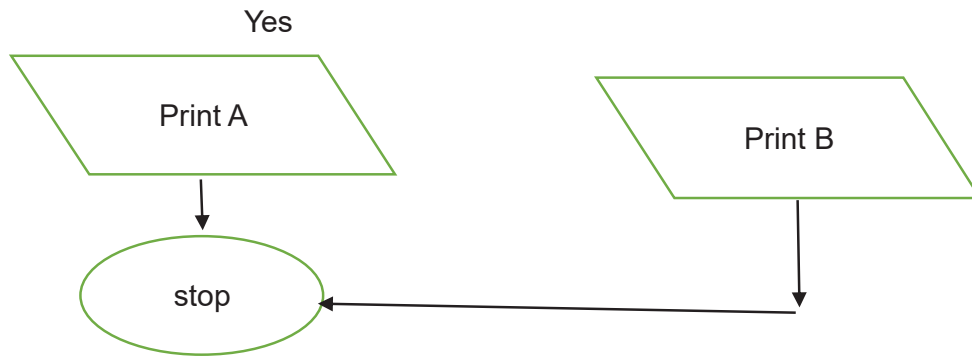
Step 5 : Else

Step 6 Print B

Step 7: End of if

Ans:





6. a) List different phases in programming
 b) Explain any three phases in programming

[July 2019,Score 2]

[Score 3]

Ans. a) Three stages in programming are,

1. Problem identification
2. Preparing algorithms and flowcharts.
3. Coding

b) i). Problem identification

In this phase the problem is analysed. The data involved in processing, the output to be obtained are identified. The data involved in processing, its type and quantity, formula to be used, activities involved and the output to be obtained are identified in this stage.

ii). Algorithms and Flowcharts

Once the problem is identified, a step-by-step procedure is developed to solve the problem.

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

Flowchart: A flowchart is a pictorial representation of an algorithm. It is mainly used to understand an algorithm

iii). Coding

The set of instructions expressed in any programming language is called a computer program. The process of writing a program is called coding.

7 Pictorial representation of algorithm is called -----

[March 2019,Score 1]

Ans. Flowchart

8. Write an algorithm to find the biggest of two numbers

[March 2019,Score 3]

Ans:

- Step 1: .Start
- Step 2: Input A,B
- Step 3: If A>B then
- Step 4: Print A
- Step 5: Else
- Step 6: Print B
- Step 7: Stop

9. The process of converting source code into object code is called ----- [July 2018, Score 1]

Ans. Translation

10. Write short notes on the following

[July 2018, Score 2]

a) coding

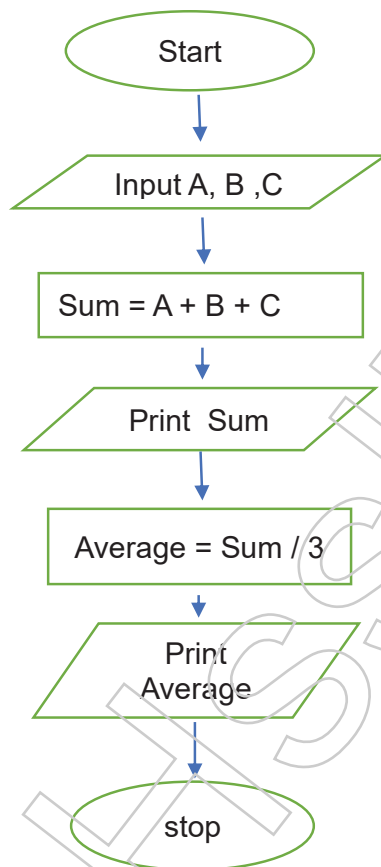
b) debugging

Ans. a) Coding: The set of instructions expressed in any programming language is called a computer program. The process of writing a program is called coding.

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

11. Draw a flowchart to find the sum and average of three given numbers [July 2018 , Score 3]

Ans



12. is a step by step to solve a problem.

[March 2018 , Score 1]

Ans. Algorithm

13. Problem Solving by computer proceeds through different stages. Name the stages in correct order

[March 2018 , Score 2]

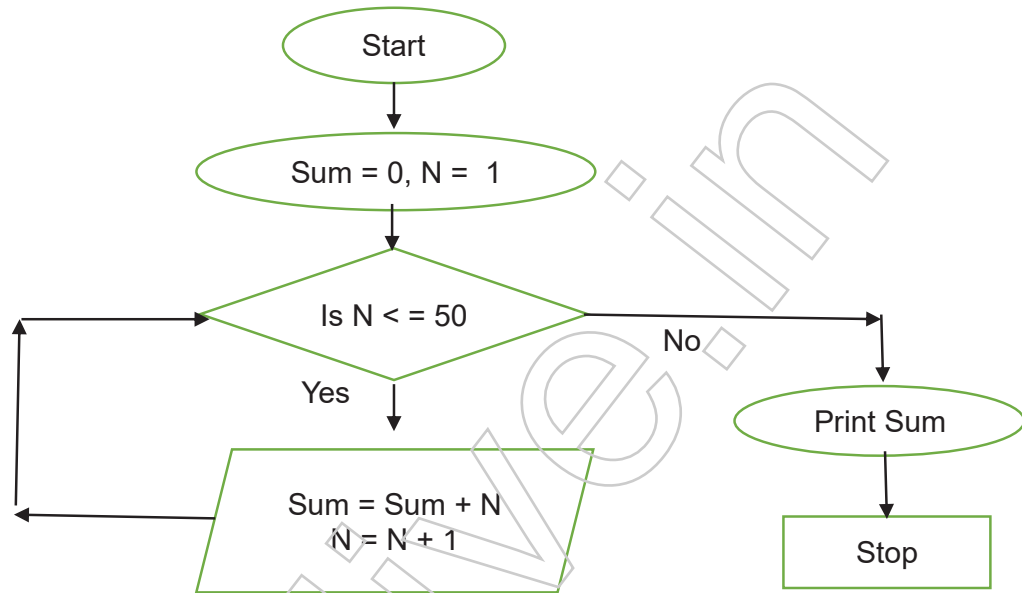
Ans. The different stages in programming are,

1. Problem identification
2. Algorithms and flowcharts.
3. Program Coding

- 4. Translation
- 5. Debugging
- 6. Execution and testing
- 7. Documentation

14. Following is a flow chart to find the sum of first 50 natural numbers

[March 2018]



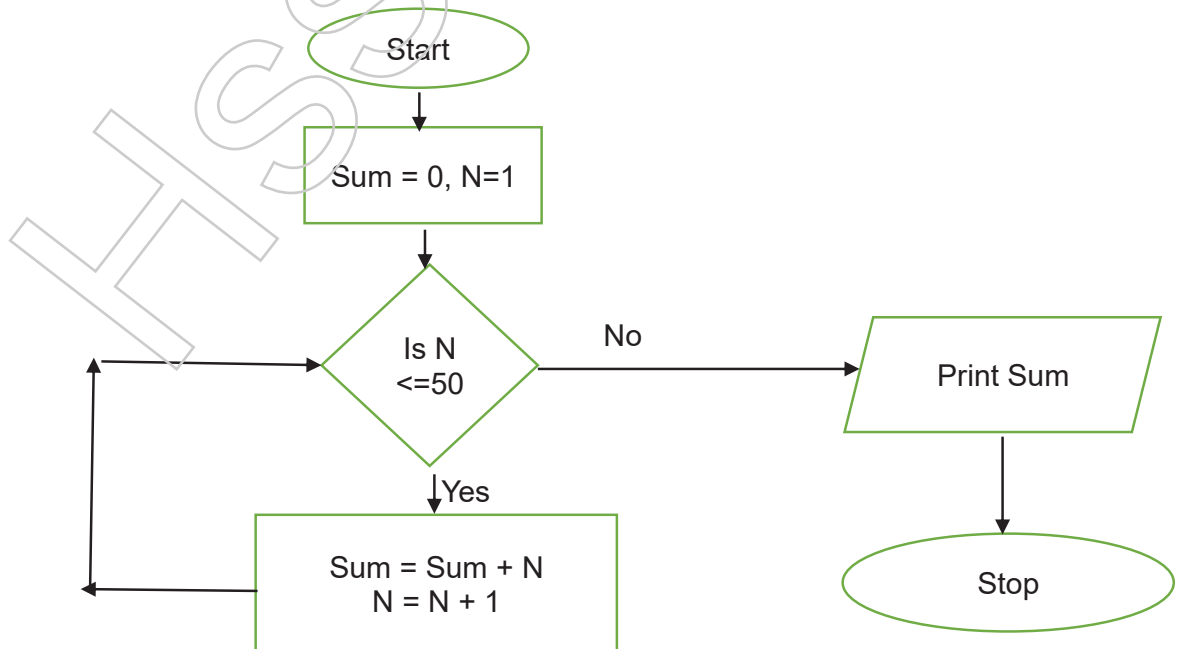
a) Correct the flow chart if there are errors

[Score 2]

b) Redraw the flow chart to the sum of even numbers between 1 and 50.

[Score 1]

Ans. a)



b) Change initialisation statement $N = 1$ to $N = 2$ and updation statement $N = N + 1$ to $N = N + 2$.

15. What is debugging? Which are the different types of errors that may occur in a program?

Ans. The process of detecting and correcting errors is called debugging. There are three types of error, Syntax error, Logical error, Run time error.

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.

16. Write an algorithm to print the multiples of 5 between 100 and 200 in descending order.

OR

[July 2017, Score 3]

Draw a flowchart to input three numbers and display the smallest.

Ans. Step 1: .Start

Step 2: Let i = 100

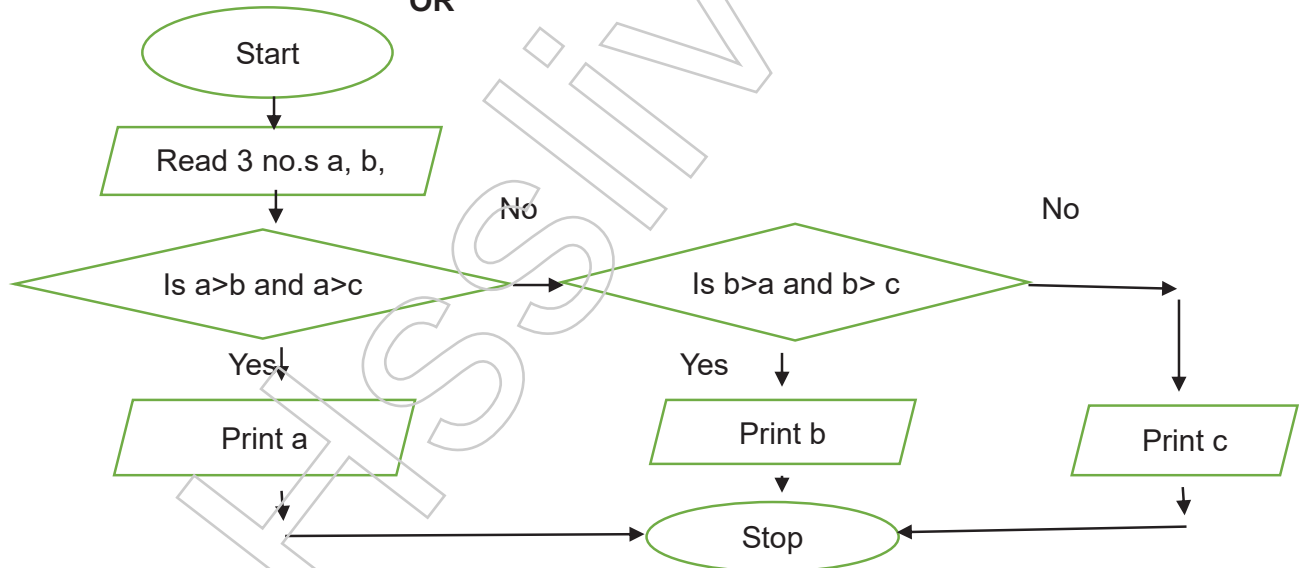
Step 3: Print i

Step 4: $i = i + 5$

Step 4: If $i \leq 200$ then go to step 3

Step 5: Stop

OR



17. Errors may occur in two stages of programming.

[July 2017]

a) Name these two stages. Explain the nature of errors in these stages. [Score 3]

b) The process of correcting these errors is known as [Score 1]

Ans. a) Translation and execution

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

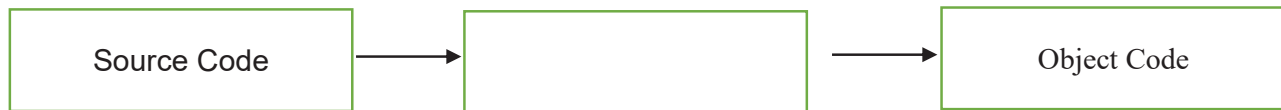
ii) Logical error : Logical error is an error in planning the logic of a program.

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.

c) Debugging

18. Fill the missing block

[March 2017, Score 1]



Ans. Translation

19. In a flow chart, the terminal symbol (an ellipse) is used to indicate the and in the program logic

[March 2017, Score 1]

Ans. Start and Stop.

20. List the different stages in programming.

[March 2017, Score 1]

Ans. The different stages in programming are,

1. Problem identification
2. Algorithms and flowcharts.
3. Program Coding
4. Translation
5. Debugging
6. Execution and testing
7. Documentation

21. Which one of the following is not a part of program documentation?

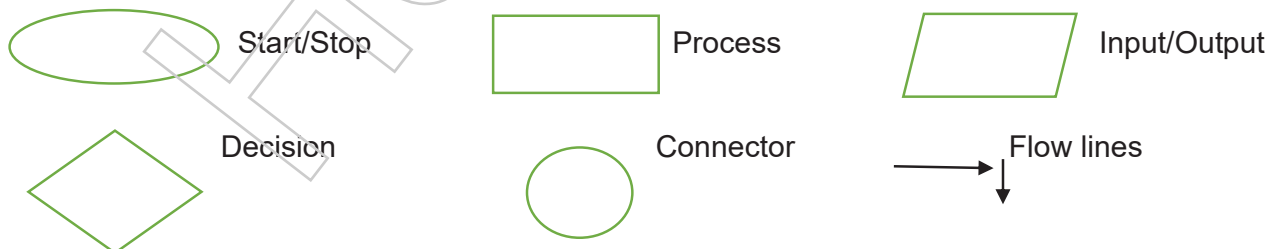
[July 2016, Score 1]

- a) Writing comments in the source code.
- b) Detecting and correcting errors
- c) Preparation of system manual
- d) Preparation of user manual.

Ans. b) Detecting and correcting errors.

22. Draw any six flow chart symbols and specify their standardized meaning. [Sep 2016, Score 3]

Ans.



23. Write an algorithm to print first 100 natural numbers.

OR

[July 2016, Score 3]

Explain the different types of errors that may occur in a program.

Ans. Step 1: .Start

Step 2: Let $i = 1$

Step 3: Print i

Step 4: $i = i + 1$

Step 4: If $i \leq 100$ then go to step 3

Step 5: Stop

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.

24. An algorithm is a finite sequence of instruction to solve a problem. **[March 2016]**

a) What are the characteristics of algorithm? **[Score 3]**

b) Pictorial representation of algorithm is called ----- **[Score 1]**

Ans. a) Characteristics of an algorithm

1. It should begin with instruction(s) to accept inputs.
2. Each instruction must be precise and should have only one meaning.
3. The number of instructions must be finite.
4. An algorithm must produce desired output.

b) Flowchart

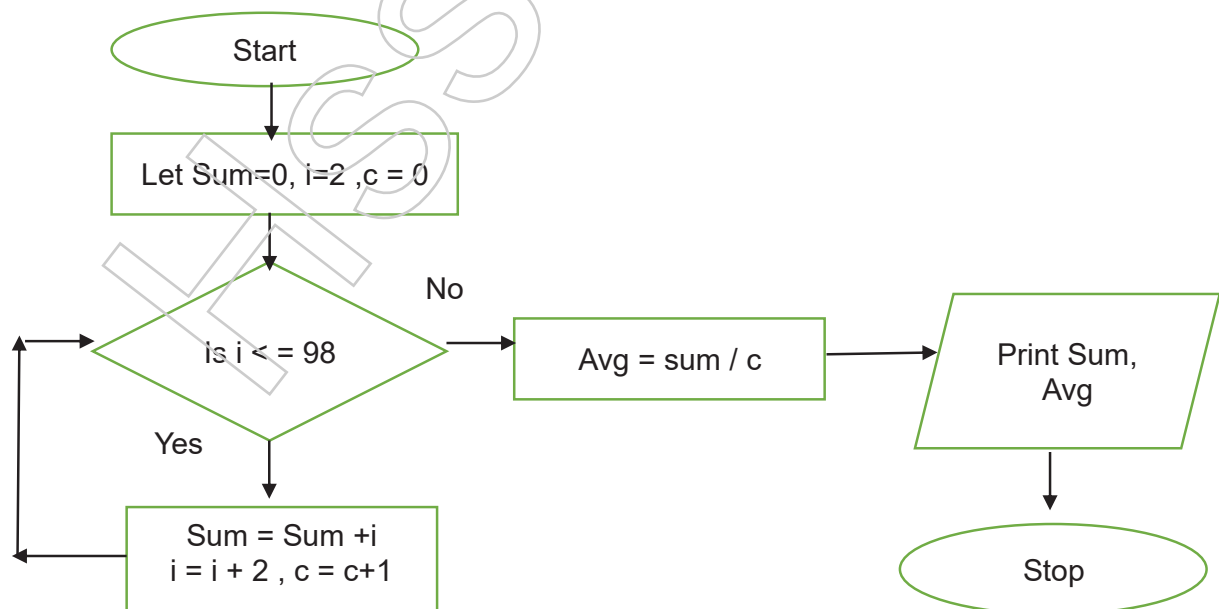
25. Draw a flowchart to find the sum and average of even numbers between 1 and 99.

OR

[March 2016, Score 3]

Write a short note on the importance of internal documentation.

Ans.



OR

Writing comments in source code is called internal documentation. It helps in program modification later.

Internal documentation helps to understand the logic of program. It also helps why a particular statement is used in the program. The documentation part will not be considered by the compiler. Documentation is the last step in programming.

26. Observe the following statements.

[July 2015, Score 1]

- a) Internal documentation consists of procedures for installing and using the program.
- b) Flowcharts are pictorial representations of algorithms.

Choose the most appropriate answer from the options below.

- i) Statement a) is correct
- ii) Statement b) is correct
- iii) Both statements are correct
- iv) Both statements are wrong

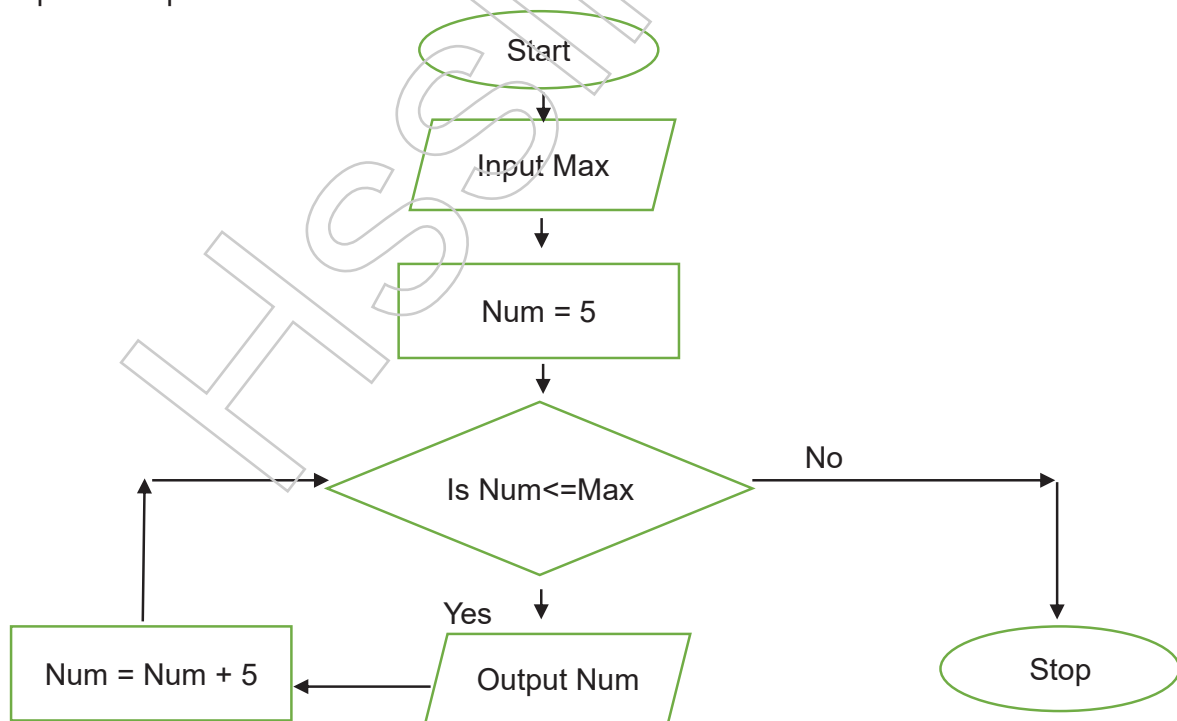
Ans. ii) Statement b) is correct

27. Draw a flowchart for the following algorithm.

[July 2015, Score 4]

- Step 1 : Start
- Step 2: Input Max
- Step 3: Num=5
- Step 4 : Repeat steps 5 and 6 while Num<=Max
- Step 5: Output Num
- Step 6: Num=Num + 5
- Step 7 : Stop

Ans.



28. While writing a C++ program ,a student forget to put a semicolon at the end of declaration statement. What type of error can we expect at the time of compilation? [March 2015 , Score 1]

Ans. Syntax error

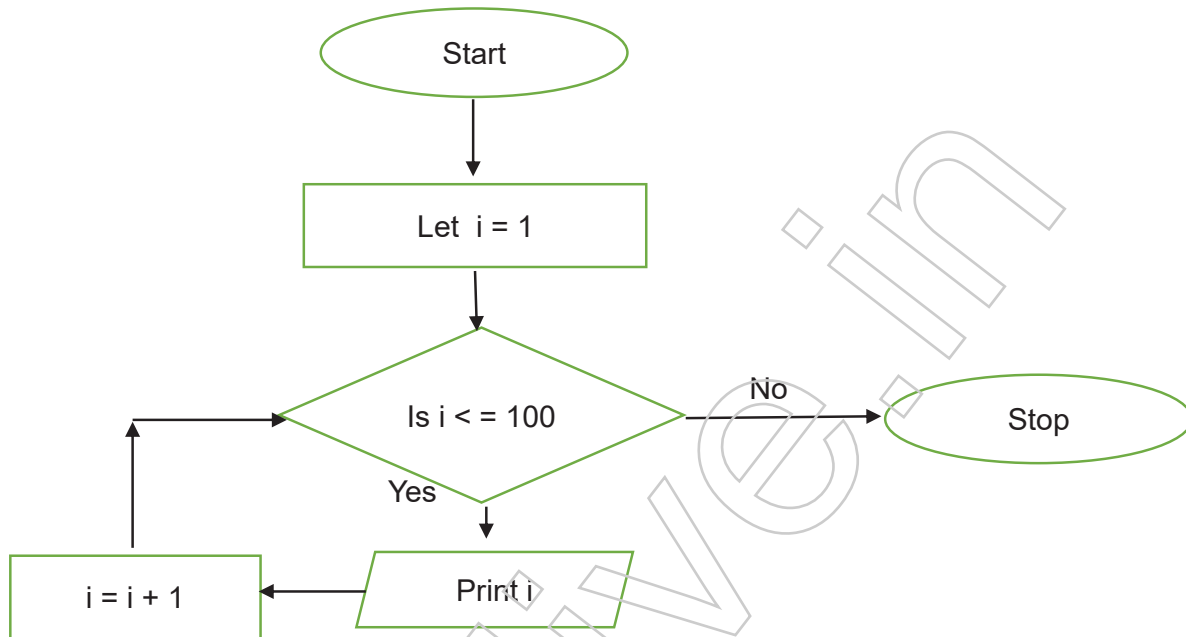
29. Draw a flowchart to print first 100 natural numbers

OR

[March 2015 , Score 3]

What are the characteristics of an algorithm?

Ans.



OR

Characteristics of an algorithm

1. It should begin with instruction(s) to accept inputs.
2. Each instruction must be precise and should have only one meaning.
3. The number of instructions must be finite.
4. An algorithm must produce desired output.

30. Briefly explain the phases in programming.

[March 2015 , Score 3]

Ans. 1. Problem identification: In this phase the problem is analysed. The data involved in processing, the output to be obtained are identified.

2. Algorithms and Flowcharts: Once the problem is identified, a step-by-step procedure is developed to solve the problem. It is called algorithm. A flowchart is a pictorial representation of an algorithm.

3. Coding: The set of instructions expressed in any programming language is called a computer program. The process of writing a program is called coding.

4. Translation: The process of converting a program written in high level language into machine language is called translation.

5. Debugging: The process of detecting and correcting error is called debugging.

6. Execution and testing: The purpose of testing is to find if the results are correct. The program will be executed and the result will be compared.

7. Documentation: This is the last step in programming. Writing comments in source code is called internal documentation. Another form of documentation is preparing user manual

4 - Getting Started with C + +

1. Pick odd one out: (float, break, add, char) [March 2020, Score 1]

Ans. add

2. Define token in C++. Name any four tokens available in C++. [March 2020, Score 3]

Ans. Tokens are the fundamental building blocks of the program. They are also called as lexical units. C++ has five types of tokens – Keywords, Identifiers, Literals, Punctuators and Operators.

3. The tokens that convey a specific meaning to the language compiler are called.....

[July 2019, Score 1]

Ans. keywords

4. Find the invalid C++ identifiers from the list given below and give reason.

(a) count

(b) 2 Number

[July 2019, Score 2]

(c) _totalTax

(d) Average height

Ans. 2 Number – First character must be an alphabet or underscore

Average height – Space is not allowed.

5. What is the escape sequence character for new line in C++ program?

[March 2019, Score 1]

Ans. \n

6. Differentiate between character literal and string literal

[March 2019, Score 2]

Ans. Character literal is a single character enclosed in single quotes. Eg: 'a', '9', '+' etc.

String constant is a sequence of one or more characters enclosed within a pair of double quotes is called. Eg: "Hello friends", "123" etc.

7. Define tokens in C++. List any four types of tokens.

[July 2018, Score 3]

Ans. Tokens are the fundamental building blocks of the program. They are also called as lexical units. C++ has five types of tokens – Keywords, Identifiers, Literals, Punctuators and Operators.