

DELHI PUBLIC SCHOOL,JAMMU
FOUNDATION WORKSHEET
SESSION- 2020-2021

Topic: Computer language

Subject : Computer

Class: vI

Introduction: Students will learn about the following sub-topics:-

- Explanation.
- Machine Language (First Generation)
- Assembly Language (Second Generation)
- High Level Language (Third Generation)
- Fourth Generation Language (4GL)

EXPLANATION:-

We all know that languages is a medium through which we can express our ideas and feelings but to communicate with a machine like computer, We need a language that a computer understands. It needs step-by-step instructions to perform any action, now a set of instructions is called a program and the process of writing specific instructions in a computer language is called programming. The set of rules and guidelines that are followed while writing a program are called syntax.

1. Machine Language (First Generation)

It is the only language that a computer understand. It is expressed in binary form i.e ‘O’s and ‘I’s where O means OFF state and I means ON state.Machine language execute very fast and utilise low memory.

But the main drawback of using machine language is that it is very tough to understand and learn it. Also it is very difficult to write and debug programs written in machine language. This language is extremly machine dependent that means the program written on one machine language may or may not run on another machine. That is why it is regraded as low level language.

2. Assembly Language (Second Generation)

Instead of 0 and 1, this language **uses** mnemonic codes or symbols. Since assembly language uses symbolic codes, it is easier to work with Assembly language than in binary language but a computer can understand only machine language. so assembly language program have to be converted into machine language, with the help of Translator Program known as Assembler. It is also regarded as **low** level language and is also machine dependent **language**.

3. High Level Language (Third Generation)

This language has developed after Assembly language with the following features:-

1. Simple and user friendly language.
2. Language that is machine independent.
3. Uses english words and mathematical operators.
4. Has to be converted into machine language by the translator programs.

There are two types of translator programs:-

(a) Interpreter:- It translates the program line by line if any error are found, they are to be **removed** immediatly. Its execution speed is slow and is preferred for beginners.

(b) Compiler:- It translates the whole program at once and its execution speed is faster as compared to an interpreter.

4. Fourth Generation Language (4GL)

The features of this language are more advanced as compare to all other languages. Its features are given below:-

- (a) Highly user friendly and independent of any operating system.
- (b) Very high speed of execution.
- (c) Minimum efforts from the user to obtain any information.

(d) Designed to reduce time and the cost of software development.

Test Your Knowledge

A. State True/False.

1. Machine language is the only language which a computer understands.

Ans. True .

2. Each programming language has its own specific rules.

Ans. True .

3. Assembly language is regarded as first generation language.

Ans. False.

4. Fortran language was designed for business users.

Ans. False.

5. Machine language uses mnemonic codes.

Ans. False.

B. One word answer type question:-

Q1. Name the translator used to convert assembly language into machine language.

Ans. Assembler.

Q2. The term software first used by whom?

Ans. John.W.Tukey.

Q3. Name the language which is directly understood by the computer.

Ans. Machine language.

Q4. Name the language that uses numeric codes or symbols.

Ans. Assembly language.

Q5. Name the language which uses english words and mathematical operators.

Ans. High Level Language.

Q6. How many categories are there for the development of computer language?

Ans. Four categories.

C. Short Answer Type Question.

Q1. What are syntax?

Ans. Syntax are the set of rules governing the formation of statements in programming language.

Q2. What is Fortran?

Ans. Fortran was one of the earliest language and was designed for scientists and engineers.

Q3. What is cobol?

Ans. Cobol was designed for business users.

Q4. What is space war?

Ans. Space war was the first interactive computer game.

Q5. Who is regarded as first computer programmer?

Ans. Lady Ada Lovelace, a Mathematician is regarded as first computer programmer.

Q6. What is a program?

Ans. A program is the set of instruction that tells the computer what to do.

Q7. What is programming?

Ans. The process of writing specific instructions in a computer language is called programming.

Q8. What is source program?

Ans. A program written in Assembly Language or high level language is called source program.

Q9. What is object program?

Ans. A program that is converted into machine language by the translator is called object program.

D. Long answer type questions :-

Q1. What do you mean by Machine Language?

Ans. Machine language is the only language that a computer understands. It is expressed in binary form i.e. 'O's and 'I's where O means 'off' state and I means 'on' state. Machine language has the advantage of very high speed and very low memory utilisation.

Q2. How is Assembly language different from Machine language?

Ans. (a) Assembly language uses mnemonic codes or symbols instead of O's and I's.

(b) It needs a translator (Assembler) to translate it into machine language whereas machine language doesn't need any translator.

(c) It becomes easy to work with assembly language than in machine language.

Q3. What are the features of high level language ?

Ans. Following are the features of High level language:-

1. Simple and user friendly language.
2. Language that is machine independent.
3. Uses English words and mathematical operators.
4. Has to be converted into machine language by the translator programs.

Q4. What are the characteristics of 4GL?

Ans. Following are the characteristics of fourth generation language:-

- (a) Highly user friendly and independent of any operating system.
- (b) Very high speed of execution.
- (c) Minimum efforts from the user to obtain any information.
- (d) Designed to reduce time and the cost of software development.

Q5. Difference between Interpreter and compiler?

Ans. Interpreter :-

1. It translates the high level language program line by line.

2. Its execution speed is slower than compiler.

Compiler:-

1. It translate the whole program at once.

2. Its execution speed is faster than interpreter.