

Assignment 1 Solution

Theory Questions with Answers:

1. What are the different types of programming languages?

Ans: There are three types of programming languages:

- a. **Machine Languages:** It is also known as Low-Level Language which can be directly understood by the machine. It is in the form of 0 & 1 (zero and one). The machine language does not need any sort of convertor.
- b. **Assembly Language:** It is the Low-Level Programming Language designed for the specific type of processor. It needs a convertor known as assembler to convert the code to the machine language.
- c. **High Level Language:** It is the human readable language which is not understood by the machine (computer) and is used to design the software. For example: JAVA, C, C++, Python, etc.

2. What is the difference between OOPs and POP?

Ans:

- POP is **procedure-oriented** programming while OOP is object-oriented programming.
- The main focus of POP is on “how to get the task done” it follows the flow chart to get the task done. OOP’s main focus is on data security as only the objects of a class are allowed to access the **attributes or function** of a class.
- The functions are small units of the large programs or a sub-program that execute to get the main task done. In contrast, OOP attributes and functions of the class are divided among the **objects**.

3. What are 4 OOPs Concepts?

Ans: The 4 OOP’s Concepts are:-

- Abstraction
- Encapsulation
- Inheritance
- Polymorphism

4. Define Encapsulation.

Ans: The wrapping up of data and its associated function (data member) into a single unit (called class) is known as Encapsulation. It is done for security of data members. Its name is obtained from the word ‘capsule’.

5. Differentiate between Inheritance and Abstraction?

Ans: Inheritance: - It is the ability of an object to acquire the properties of another class.

Abstraction: - The act of representing essential features of an object without knowing the background and details is known as Abstraction.

Example: switchboard, etc.

6. What is an Object and Class in JAVA?

Ans: Object: An object is the name of any person, place, things or entity. Every object has the following inbuilt characteristics: Identity, State and Behaviour.

Class: A class can be termed as a group of objects that shares common properties. A class can contain data modules/functions.

7. Why object is considered as instance of class?

Ans: A Class is a structure of an object, meaning, all the necessary elements (data members + member functions) of the class are present in the object. That’s why it is known as instance of class.

8. What are variables and keywords?

Ans: Variable: It is the name of memory area used to store data values.

Keywords: Keywords are the predefined reserved words used in programming that have a special meaning known to compiler.

For example: if, class, public, System etc.

9. What are comments? Explain its types.

Ans: Comments are the statements which are ignored by the JAVA compiler. They are written in two ways: Single Line Comments (`//this is single-line comment.`), Multi Line Comment (`/*this is multi-line comment. */`).

10. What is JAVA and what are its features?

Ans: JAVA is a high-level Object-Oriented Programming Language with several features:

- a. Platform Independent.
- b. WORA (Write Once Read Anywhere).
- c. Object Oriented Secured Language.
- d. Simple Language.
- e. Light-weight Code.
- f. It supports multi-threading.
- g. It is robust (fault tolerant).

11. Define Bytecode and JVM.

Ans: Bytecode: It is a machine instruction code which is executed by JAVA processor chip called JVM (JAVA Virtual Machine).

JVM: It is an abstract layer which exists on the top of existing operating system.

12. What are exceptions? Explain its types.

1. **Ans:** When the program does not give the desired output, then we see it contains error. The unexpected situation which occurs during the execution of the program is called exception or error. There are three types of error:

- a. **Compile time error**- The error which occurs during the compilation of the program, is called the Compile time error.
Eg: Syntax error, means the error which occurs when we violate the syntactical rule of a programming language. i.e., missing semicolons, undeclared variable, mis-match curly braces, etc.
- b. **Semantic error**- The error which occurs when we issue some meaningless statements is called semantic error. Its types are:
 - Logical Errors: The errors which occurs due to wrong implementation of logic is called logical errors. Eg: Infinite loop
 - Run-Time Errors: The error which occurs due to the execution of the program is called run-time errors.

13. What is a base class and derived class?

Ans: Base Class: The base class is a class whose property will be inherited.

Derived Class: It is a class which inherits the base class.

14. Why class is known as object factory?

Ans: Class is said to be an object factory because the class is basically an object maker. It contains all the attributes (data members and member functions) to create an object. It also contains the statements that describe the operations that the object is going to perform.

15. Write a program to print your name, age and your city in different lines.

Solution:

```
class myclass
{
    public static void main(String Args[])
    {
        System.out.println("My Name is Anam Khan");
        System.out.println("My Age is 15");
        System.out.println("I live in Noida");
    }
}
```