Tender Heart High School, Sector-33 B, Chanadigarh

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Topic- Chapter 1 - Unit 1 Principles of Object Oriented Programming
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Fill in the blanks

1	Data Abstraction.	2	data.	3	Encapsulation.
4	object	5	function.	6	function.
7	inheritance.	8	polymorphism.		

State whether the given statements are TRUE or FALSE

1	False	2	True	3	False	4	True
5	False	6	False	7	True	8	True
9	False	10	True				

Name the following

1	(a) Assembly Language	(b) Machine Language
2	(a) BASIC	(b) COBOL
3	(a) PASCAL	(b) ALGOL
4	(a) Electrical Switchboard	(b) ATM
5	(a) Television	(b) Car
6	(a) Encapsulation	(b) Inheritance

Write short notes [only for reference]

1 Object Oriented Programming is an approach in which stress is laid on data rather than functions. The data values remain associated with the functions of a particular block of the program so as to encourage data security.

2 Data Abstraction is the act of representing the essential features without knowing the background details. Example of Data Abstraction is car.

3 Wrapping of data and functions that operate on that data into a single unit is called Encapsulation. Example of Encapsulation is ATM.

4 For the processor to perform any computation, we need to give the instructions and data as a sequence of 0's & 1's. This binary sequence that a processor understands is known as its Machine Level language. Machine Level language is made up of instructions and data that are all binary numbers. Machine Level language of a processor differs from vendor to

vendor. So programs written in Machine Level language of one type of processors will not work on a different type of processor.

5 In object-oriented programming, Polymorphism provides the means to perform a single action in multiple different ways. Example of Polymorphism is Mobile Phone

6 Procedure Oriented Programming basically consists of a list of instructions for the computer to follow and these are organized into groups known as functions. In Procedure Oriented Programming, most of the functions share global data and this data moves more openly around the system from one function to the other.

7 Inheritance enables new classes to receive or inherit the properties and methods of existing classes. Example of Inheritance is fruit.

8 In Assembly Level language, instructions are written in more english like words knowns as mnemonics. These instructions are not understood by the processor directly. They are converted into equivalent Machine Level instructions through a translator program called Assembler. Assembly Level language is machine dependent that makes it unsuitable for writing portable programs that can execute across machines.

Distinguish between [only for reference]

1 Object Oriented Programming and Procedure Oriented Programming

Object Oriented Programming

The stress is put on data rather than functions. .

The data is restricted, to be used in a specific program area.

It follows bottom-up programming approach.

Procedure Oriented Programming

The stress is put on function rather than data

It allows data to flow freely throughout the program.

It follows top-down programming approach.

2 High Level language and Low Level language

High Level language

High Level language is machine independent.

High Level language is human friendly so it is easy to understand for programmers.

High Level language needs a compiler or interpreter for translation to machine code.

Programs written in High Level language are easier to modify and debug.

Low Level language

Low Level language is machine dependent.

Low Level language is machine friendly so it is difficult to understand for programmers.

Low Level language might need a assembler for translation to machine code.

Programs written in Low Level language are hard to modify and debug.

3 Compiler and Interpreter

Compiler

It converts the whole source program into the object program at once.

It displays the errors for the whole program together, after the compilation.

Interpreter

It converts the source program into the object program, one line at a time.

It displays the error one line at a time and only after fixing that error the control goes to the next line.

Answer the following questions [only for reference]

1 Enlist the features of Object Oriented Programming.

Some of the features of Object Oriented Programming are:

1. It gives stress on data items rather than functions.
2. It makes the complete program/problem simpler by dividing it into number of objects.
3. The objects can be used as a bridge to have data flow from one function to another.
4. The concept of data hiding enhances security in programs.
5. It is highly beneficial to solve complex programs.

2 Polymorphism implements function overloading. It is the process of using a function/method for more than one purpose. In function overloading, we write more than one function with the same name but differing in the number and types of their arguments to perform different tasks. This way we get different behaviours using the same function name.

3 Three benefits of Object Oriented Programming are:

1. The reusability of the program code is enhanced.
2. Data abstraction makes the software easier to handle.
3. Software for complex tasks can be easily developed.

4 (a) Procedure Oriented Programming

1. No restriction on data values so managing changes is difficult as it impacts the entire program.
2. No reusability concept hence time management, testing and length of the program increases.

(b) Object Oriented Programming

1. Requires intensive testing processes.
2. Solving problems takes more time as compared to Procedure Oriented Programming.

5 Encapsulation restricts the free flow of data from one object to another. The data and functions are wrapped together in an object in such a way that the data of a particular object can only be used in associated functions. Thus, Encapsulation helps in protecting the data from unauthorised access.

6 High Level languages are machine independent.

High Level languages are human readable as instructions are written using English like words and phrases.

It is easier to understand and develop the program logic in High Level languages.

The error detection and correction is easier.