**Programming & OOP Concepts**

**Assignment Day-2**

1Q) Given an entity named **Television,** identify its attributes and explain how will you do Abstraction?

**Abstraction:**

Abstraction is the process of hiding the internals or complex implementation of the system and expose only the required information.

**Attributes for Television:**

Channel keys

Volume keys

On/Off buttons

Cable switch

TV remote

The above attributes are the necessary things that are exposed to the users to use it and the unwanted features like tv machine, connections are hidden(not exposed to users).Here channels, volume keys ,screen , cable switches are exposed part of Television which acts like abstraction.

2Q) Given an entity named **Hospital,** explain Encapsulation with respect to it.

**Encapsulation:** **It** is defined as the wrapping up of data under a single unit. It is the mechanism that binds together code and the data it manipulates.

**Attributes for Hospital:**

Patients

Doctors

Management

Ambulance Services

Labs

Nurses

Receptionist

The above mentioned are the attributes for hospital. Initially when a person visits a hospital their details are given to the receptionist. Receptionist will share the details to the doctor, the information is only known to the doctor no other person will get to know about it. The doctor examines the person and gives some medical treatment, to diagnose the problem some medical test can be done but the reports or about the patient is not known to others. Which satisfies the condition of encapsulation i.e., Combination of data hiding and abstraction.

3Q) Given an entity named **Traffic Signal,** explain Polymorphism with respect to it.

**Polymorphism:** The word polymorphism means having many forms. In simple words, we can define polymorphism as the ability of a message to be displayed in more than one form.

For the Entity **Traffic Signal,** there will be three indicators those three come into play for three different situations. “Red” signal indicates that the vehicle should stop. “Yellow” signal indicates the vehicle to slow down and be ready. “Green” signal indicates to Go. Based on the colour indications the traffic signal have many forms.

4Q) Given an entity named **Broad Band Connection,** explain inheritance with respect to it.

**Inheritance:** It is the mechanism in which one class is allowed to inherit the properties and behaviours of child class.

In Broad Band Connection, imagine designing a class to create broad band connections like airtel, Vodafone, jio etc. All broad band objects have the same properties and behaviors. They can provide good internet, router, modem etc. Instead of creating these classes individually a general broad band class with all the attributes and behaviors of a broad band can be used to model all broad band objects, the other classes then inherit or are created on the superclass attribute and methods.

5Q) Given an entity named **Mobile Phone,** identify its static & dynamic attributes.

**Static Attributes:**

Camera

Battery

USB cables

Mobile phone body

Sim tray

Mobile mother board

**Dynamic Attributes:**

User Interface

Settings