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

Ans: The television would be the entity, then the attribute will be,

* 1. CRT
  2. Audio systems
  3. DMDs(Digital micro mirror devices)
  4. VCRs
  5. Laser disc players etc
  6. Processor
  7. Screen
  8. Wires
  9. Memories
  10. Sensor
  11. Actuator
  12. Bluetooth
  13. PCB

As the abstraction is the process of hiding internal data and implementations from the outer world. Like this, the user only knows how to operate the television like brightness control, audio control, channel change etc. All of this can be done by the user by using remote. So the user does not aware of how the inner parts implemented.

It hide the unnecessary or important data and shows only the essential data.So lets take one example of television. In television there are number of attributes.

Hide the unnecessary data : we all know how to turn the TV on, but we don’t ?need to know how it works in order to enjoy it. Like we don’t know what the types of wires are ,actuators, sensors, memories various types of modules such as wifi, bluetooth etc that all are hidden.

1. Given an entity named **Hospital,** explain Encapsulation with respect to it.

Ans: The following are the attributes :

* 1. Doctor
  2. Patient
  3. ICU
  4. OT(Operation theatres)

Encapsulation refers to integrating variables and methods into a single unit. In encapsulation class variables are hidden from another classes and can only be accessed by the methods of the class in which they are found.

For ex: When a patient goes for check up or if he as any health issue, he goes to the particular doctor may be dermatologist, gynagologist, cardiologist etc. So he is examined by only one doctor or the only doctor is assigned for the patient. He does not need to go to other doctors. Like this during the operation, the OT is allotted to the only patient and the doctors who involve in the operations not to others. And in the case of ICU, it is also allotted to the particular persons. Others are not able to access the ICU.

1. Given an entity named **TrafficSignal,** explain Polymorphism with respect to it.

Ans: Polymorphism is the concept of OOPS. Polymorphism allows a client to treat different objects in the same way even if they were created from different classes and exhibit different behaviours.

Example: Traffic-Signal Whenever red signal is glow, all vehicles should stop.

Green light is the signal that the vehicles can go.

Yellow light is the sign that the vehicles must slow down and stop before the light turns red. All different type of barking systems works. i.e .all vehicles of barking system but there implementations is different but purpose is same.

1. Given an entity named **BroadBandConnection,** explain inheritance with respect to it.

Ans: Inheritance is a mechanism in which one object acquires all the properties and behaviours of a parent object. The idea behind inheritance that you can create new classes that are built upon existing classes. When you inherit from an existing class, you can reuse methods and fields of the parent class. Moreover you can add new methods and fields in your current class also.

Example: If we consider BroadBandConnection is an example,Its types would be

* 1. DSL
  2. Cable modem
  3. Fiber
  4. Wireless
  5. Satellite
  6. BroadBand over powerlines (BPL)

All types of broadband connection has the same property and they have the additional properties according to their types.Like as ADSL and SDSL comes under the DSL it has the properties of SDL and along with both of these having their own proprerties.

1. Given an entity named **MobilePhone,** identify its static & dynamic attributes.

Ans: 1. Calculator

1. Camera
2. Dictionary app
3. Calender
4. Contact app etc

Static Applications are not reliant on connection to an online server or database,Apps built in this way are downloaded one. Usually periodically updated, and are able to function offline only with the device on which they are installed.

* 1. Some Games
  2. Youtube
  3. Chrome
  4. Learning apps and shopping apps etc.

Dynamic applications are in some way reliant on an online server or database. When connected these apps are loaded from a central server so that they iterative changes to development, design or functionally are rolled out across all devices simultaneously.