iHome: This is a smartphone app that runs on Android and iOS platforms. This app needs to connect with a centralized device where all the household appliances like TV, Refrigerator, Smart fan, AC, Smart window, Smart gate, etc. The centralized device using two types of communication technologies are Bluetooth and the internet. The device is using Bluetooth to connect all the appliances as well the mobile app when the mobile is in Bluetooth covering range. The same will use the internet to connect with the mobile app when the mobile is out of range to the Bluetooth. The app must contain a very classy interface to control the appliances are connected to the centralized device. Each appliance will have separate controlling options like Smart fan will be controlled with various levels of speed using the mobile app. So the app must be developed with various controlling options for various appliances. The app must connect with the centralized device through the internet when the user will out of range. So the user can monitor and control all the appliances from anywhere. The app must enable another feature like configuring various control based on time like if the time is 6 PM then lights must be turned on and if the time is 10 PM then the app must turn off lights. So, this app must control entire home appliances.

a) Having a thorough understanding of the general objectives and given requirements, select an appropriate software process model to develop the app and justify.
b) Perform requirements analysis to understand the requirements for the scenario with respect to FURPS. Categorize them into use cases, features, functional and non-functional requirements.
c) If this software has 6 screens of medium complexity and 11 - 3GL components, compute the productivity of the software using object points and the effort in person-months. There is a possibility for 40% reusable codes.
d) From the scenario-based model, perform the basis path testing and derive the independent paths along with test cases.
e) Derive the possible set of input test cases to test the functionality of the software using BA and Orthogonal array testing and list the possible exciting requirements to the user at the end of product development.