ASSIGNMENT NO. 6

1. In the article on Practical UML™: A Hands-On Introduction for Developers - by Randy Miller, at reference http://bdn.borland.com/article/0,1410,31863,00.html, you will find simple explanations of concepts in UML2 modeling used in software engineering. The core of the Unified Modeling Language is its nine (9) kinds of modeling diagrams listed below. In your own words, describe the diagrams and its use (i.e. when, where and in what instance you choose to specifically use it).

   - Use case diagrams
   - Class diagrams
   - Object diagrams
   - Sequence diagrams
   - Collaboration diagrams
   - Statechart diagrams
   - Activity diagrams
   - Component diagrams
   - Deployment diagrams

2. The Good Book provides a comprehensive idea of the process and transition relationships between the Analysis Model and the Design Model, through the process dimension as shown in Figure 9.4 (Chapter 9). Explain why the ER Model or the ER Diagram is not included in the figure. Hint: Go to the following URL http://www.smartdraw.com/examples/software-erd/department_full.htm

3. Describe how we can use the different types of design patterns throughout the software design process. Why should we use them?

4. Relate our learning on real-time software applications in software engineering to our visit to the MMP/KVDT site with regards to the following subjects:
   - Business Operations to the importance of the URS
   - Class diagrams to electrical pumps, flow meters, pressure sensors, etc
   - Statechart diagrams to the alarm monitoring screens, etc
   - Component & Deployment diagrams to pumping stations, gantry etc,

   Explain in your own words the four (4) direct relationships (actually many more) that have been identified above.

5. Describe the three (3) characteristics: concurrency, persistence and distribution in the context of the architecture diagrams below.

REFERENCES:
http://java.sun.com/j2ee/white/connector.html
The Application Server for the Mincom Ellipse SOA above is the J2EE architecture using either the IBM Websphere or the BEA WebLogic application. A generic J2EE application architecture is shown below.

![Diagram of J2EE Application Architecture](image)

**Figure 1-1 Multitiered Applications**