Advanced Database Systems Lecture Assignment

1. Discuss the reasons for converting SQL queries into relational algebra queries before optimization is done.
2. How does a query tree represent a relational algebra expression? What is meant by an execution of a query tree? Discuss the rules for transformation of query trees, and identify when each rule should be applied during optimization.
3. What is a serial schedule? What is a serializable schedule? Why is a serial schedule considered correct? Why is a serializable schedule considered correct?
4. How does the granularity of data items affect the performance of concurrency control? What factors affect selection of granularity size for data items?
5. What are the before image (BFIM) and after image (AFIM) of a data item? What is the difference between in-place updating and shadowing, with respect to their handling of BFIM and AFIM?