Task 1 Given is the following SQL query (Exercise 1-3a):

```
SELECT Player.name
FROM Player, Team
WHERE Team.name = 'Sacramento Kings' AND
Team.tid = Player.tid;
```

Provide three equivalent expressions using the relational algebra.
What is the difference between the query in SQL and in relational algebra?

Task 2 What is the purpose of an architecture?
Considering databases, why is one architecture not sufficient?

Task 3 Sketch the 5-layer architecture!

Task 4 Map the following functionality to the 5-layer architecture:

- Usage of primary and secondary indexes
- Assignment of storage to pages
- Resolving of views
- Transaction management
- Physical storage management
- Logging

Task 5 Given the following architecture:

Map the following components of the given architecture to the 5-layer architecture:
• Queries (Anfrage)
• Optimizer (Optimierer)
• Evaluation (Auswertung)
• Disk Access (Plattenzugriff)

Task 6 What is the difference between Query-, Object, and Page-Servers? What are advantages and disadvantages?

Task 7 In the lecture the architectures of IBM DB2, Oracle, SQL Server were presented. All systems separate data from the database and logs. Why is this approach useful?

Task 8 Using IBM DB2, multiple agents can be created for the same database. Which issues arises, when multiple agents are used?

Good Luck!