

COP 4710 – Fall 2013

Final Exam Review

- The final exam covers the lecture notes on the course web page.

Comprehensive Portion

- Levels of abstraction in a DBMS
 - external/conceptual/physical levels and mappings.
- Database design process – 6 basic steps: (requirements analysis, conceptual design, logical design, schema refinement, physical design, security design, (tuning)).
- ER modeling.
- Relational algebra. Tuple calculus. SQL.
- Normalization

New Material Portion

- CHAPTER 12 - Query Processing and Optimization
 - Query trees.
 - Indices.
 - Selectivity factors.
- CHAPTER 9 – Data Storage
 - Know what RAID is used for – don't worry about the different levels.
 - Basic physical system parameters and optimizations
 - Basic file structures.
- CHAPTERS 16 & 17 - Transaction Processing and Concurrency Control
 - Know what a serializable schedule is.
 - Locking and timestamping protocols.
 - Serializability under locking (X-Lock and X/S-Lock protocols).
 - Serializability under timestamping. Wait-or-die, wound-or-wait.
- CHAPTER 22 - Distributed Database Systems
 - The fundamental principle of DDB.
 - The 12 objectives of a DDB.
 - Data distribution techniques (replication, fragmentation, combinations).

- Distributed transaction processing. Local vs. global transactions.

UPDATED December 2, 2013...

EXAM consists of 7 problems (100 points total)

2 – serializability problems (20 points)

2 – timestamping protocol problems (20 points)

1 – SQL queries (4 different queries using same db as exam 2) (40 points)

Only queries – no insert, update, etc. or DDL commands.

1 – distributed transaction processing problem (10 points)

1 – query evaluation/processing/optimization problem (10 points)