

Question 1: Recovery (Part 1) [100 points]

- (i) **[10 points] Recovery:**
List the purpose of: (1) flushedLSN, (2) pageLSN, (3) recLSN, (4) lastLSN, and (5) MasterRecord.
- (ii) **[10 points] Recovery:**
Explain the connection between pageLSN and flushedLSN.
- (iii) **[10 points] Recovery:**
Why are log records from a transaction chained together? How is this done?
- (iv) **[10 points] Recovery:**
Distinguish between: (1) COMMIT and (2) TXN-END records.
- (v) **[10 points] Recovery:**
Why does the DBMS not need to immediately flush the TXN-END record?
- (vi) **[10 points] Compensation Log Record:**
Explain the purpose of a compensation log record.
- (vii) **[10 points] Compensation Log Record:**
Should the DBMS undo a CLR? Justify your answer.
- (viii) **[10 points] Checkpointing:**
Distinguish between: (1) fuzzy and (2) non-fuzzy checkpointing.
- (ix) **[10 points] Checkpointing:**
List the contents of the active transaction table.
- (x) **[10 points] Checkpointing:**
Explain why the DBMS must keep track of checkpoint boundaries with fuzzy checkpointing.