

- N.B: (1) All questions are compulsory.
 (2) Figures to the right indicate marks.
 (3) Illustrations, in-depth answers and diagrams will be appreciated.
 (4) Mixing of sub-questions is not allowed.

Q1. Attempt the following (any THREE): (15)

- Explain Armstrong's Axioms. Apply it on the relation R with $R = ABCDEGH$ with $FD F^+ = \{AB \rightarrow C, AC \rightarrow B, AD \rightarrow E, B \rightarrow D, B \rightarrow G\}$.
- Briefly explain example of lossy decomposition. Also define Lossless Join Decomposition.
- Write a short note on Fourth normal form.
- What is D stands in ACID property? What is importance of D? Explain with example how D is achieved?
- Define serial schedule and Serializable schedule. State in brief anomalies cause due to interleaved execution.
- What is precedence graph? Explain how a precedence graph can be draw for any schedule S.

Q2. Attempt the following (any THREE): (15)

- State and explain rules of Strict Two-Phase Locking protocol.
- Write a short note on The Thomas Write Rule.
- What is deadlock? Briefly explain deadlock prevention mechanism.
- List entries of transaction and dirty page table along with instance of log file. Explain with suitable example.
- What is write ahead log protocol? Explain in brief.
- Explain in detail Analysis phase in detail with suitable example.

Q3. Attempt the following (any THREE): (15)

- What are packages? State the advantages packages.
- Write a short note on package specification.
- Develop a simple package to display details of a specified employee Id from a employee table.
- State the difference between Static and dynamic SQL. State advantages of Static SQL over a dynamic SQL.
- Write a short note on DBMS SQL Package.
- List different types of applications where dynamic queries are necessary.

Q4. Attempt the following (any THREE): (15)

- State & explain with example the applications of triggers.
- Describe use of indexing in DBMS. What are its advantages.
- Write a short note on Tree-based Indexing.
- Write a short note on Instead of Trigger.
- Compare between statement-level and Row-level Trigger.
- Explain with example clustered index organization.
 - Using Range Query.
 - For Equality.

Q5. Attempt the following (any THREE):

- (A) Write a short note on Conflict serializability.
- (B) Write a short note on fifth normal form.
- (C) Explain in brief upgrading and down grading locks.
- (D) What is check point? What does checkpoint do? State the importance of checkpoint.
- (E) Write a syntax for creating
 - Simple index.
 - Unique index.
 - Function base index.
- (F) What is Trigger? Differentiate between disabling trigger and removing trigger.

muquestionpapers.com