Q.P. Code: 22532

(2 ½ Hours) **[Total Marks:75]**

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)**
(A) State the properties of decomposition. Explain any one.
(B) What is closure set of functional dependency?
(C) With respect to schedule define terms: Conflict equivalent & conflict serializable.
(D) Discuss the ACID properties of transaction processing.
(E) What is transaction? What are functions of commit and rollback?
(F) Explain concept of view serializability.

Q2. **Attempt the following (any THREE):** **(15)**
(A) Differentiate between the various concurrency control schemes.
(B) Describe deadlock management techniques in database.
(C) Write short note on Time stamp ordering protocol.
(D) Explain the functioning in Redo plan of ARIES.
(E) What is Recovery? Explain all Log based Recovery technique with example.
(F) Describe in short, the concept of Checkpoint.

Q3. **Attempt the following (any THREE):** **(15)**
(A) Assuming sales table consisting of columns zone, prodid, quantity. Write a PL/SQL code to accept zone & product id from user to display total sale of specified product & zone with appropriate labels.
(B) Write PL/SQL block to check given number is prime number or not.
(C) Explain general format of `For loop' in PL/SQL.
(D) Explain the syntax of defining variables and constants in PL/Sql and the data types used in PL/Sql block.
(E) Explain concept of NULL values in PLSQL.
(F) Explain Jump and exit statements in PLSQL with example.

Q4. **Attempt the following (any THREE):** **(15)**
(A) State different relational operations and explain any 2.
(B) Write a short note on Query Optimization.
(C) State & explain implicit cursor attributes.
(D) Write a short note on sequence. Explain how to modify sequence.
(E) Write a implicit cursor to count number of rows updated by update statement.
(F) Explain cursor for loop with example.

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Q5. Attempt the following (any THREE): (15)

(A) Explain the dependencies occurring in Fourth and Fifth Normal Form.

(B) We are given Relation R with Attributes A, B, C, D, E, F and the FDs as below, find & explain which Armstrong's Axioms can be applied here to find Closure,

$$A \rightarrow BC$$
$$B \rightarrow E$$
$$CD \rightarrow EF$$

(C) Write a short note CASE Expression in PL/SQL along with an example.

(D) Write down the difference in implicit cursor and explicit cursor.

(E) What is locking? Explain various locking parameters.

(F) Write short note on Commit, Rollback and Savepoint used in PLSQL.