**Time allowed: 90 Minutes Max. Marks: 40**

**General Instructions:**

* **Follow the instructions given in each section.**
* **Make sure that you attempt the questions in order.**

**SECTION-A (10\*1 mark=10 marks)**

***(All questions are compulsory)***

1. Normalization in database design aims to:
   1. **Minimize redundancy and eliminate data anomalies**
   2. Optimize query performance and speed
   3. Maximize data storage capacity
   4. Improve user interface design
2. Which concurrency control technique allows multiple transactions to access the database simultaneously while maintaining isolation?
   1. Two-Phase Locking (2PL)
   2. Timestamp Ordering
   3. **Multiversion Concurrency Control (MVCC)**
   4. Optimistic Concurrency Control (OCC)
3. Which SQL operator is used to combine multiple conditions in a WHERE clause?
   1. **AND**
   2. OR
   3. NOT
   4. XOR
4. Which SQL keyword is used to retrieve data from a database table?
   1. **SELECT**
   2. INSERT
   3. UPDATE
   4. DELETE
5. Which security measure ensures that data can be restored to its original state in the event of data loss or corruption?
   1. Role-based access control
   2. Data replication
   3. **Backup and recovery**
   4. Intrusion detection system
6. Which normal form eliminates all transitive dependencies in a relational database?
   1. First Normal Form (1NF)
   2. Second Normal Form (2NF)
   3. Third Normal Form (3NF)
   4. **Boyce-Codd Normal Form (BCNF)**
7. Which SQL statement is used to declare a cursor?
   1. OPEN
   2. SELECT
   3. **DECLARE**
   4. FETCH
8. Which SQL statement is used to close a cursor?
   1. **CLOSE**
   2. DEALLOCATE
   3. RELEASE
   4. FREE
9. In a DBMS, which control structure is used to selectively execute a block of statements based on a condition?
   1. FOR
   2. DO-WHILE
   3. **IF-ELSE**
   4. CASE
10. Which type of backup includes all the data that has changed since the last full backup?
    1. Incremental backup
    2. **Differential backup**
    3. Snapshot backup
    4. Mirror backup

**SECTION-B (5\*2 mark=10 marks)**

***(All questions are compulsory)***

1. A Key which is a set of one or more columns that can identify a record uniquely is called?
   1. Natural key
   2. **Candidate key**
   3. Not Null key
   4. Alternate key
2. Which of the following statement is true?
   1. **TRUNCATE free the table space while DELETE does not.**
   2. Both TRUNCATE and DELETE statements free the table's space.
   3. Both TRUNCATE and DELETE statement does not free the table's space.
   4. DELETE free the table space while TRUNCATE does not.
3. A sequence in SQL can generate a maximum number:
   1. 39 digits
   2. **38 digits**
   3. 40 digits
   4. 37 digits
4. Which of the following statement is correct to display all the cities with the condition, temperature, and humidity whose humidity is in the range of 60 to 75 from the 'whether' table?
   1. SELECT \* FROM weather WHERE humidity IN (60 to 75)
   2. **SELECT \* FROM weather WHERE humidity BETWEEN 60 AND 75**
   3. SELECT \* FROM weather WHERE humidity NOT IN (60 AND 75)
   4. SELECT \* FROM weather WHERE humidity NOT BETWEEN 60 AND 75
5. Which of the following SQL query is correct for selecting the name of staffs from 'staffinfo' table where salary is 10,000 or 25,000?
   1. SELECT name FROM staffinfo WHERE salary BETWEEN 10000 AND 25000;
   2. **SELECT name FROM staffinfo WHERE salary IN (10000, 25000);**
   3. Both A and B
   4. None of the above

**SECTION-C(Coding Question) (4x5 marks=20 marks)**