

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Students answering in the regional language should refer in case of doubt to the main text of the paper in English.

**Q1 Answer any 4 from the following.**

**20  
Marks**

- 1) Explain how to create stored procedure with syntax and example.
- 2) Explain difference between before and after trigger with example.
- 3) Write a short note on sequences with syntax and example.
- 4) Explain different types of hashing techniques.
- 5) Explain Sparse index with example.
- 6) Write a procedure to add two numbers passed from the calling PL/SQL block.

**Q2 Answer any 4 from the following.**

**20  
Marks**

- 1) Define PL/SQL and Explain its block structure.
- 2) Write a PL/SQL block to check whether the positive or negative or equal to zero.
- 3) Explain the following PL/SQL operators with example:
  - a. \*\*
  - b. ISNULL
  - c. <>
  - d. BETWEEN
  - e. LIKE
- 4) Write a short note on PL/SQL Data types in brief.
- 5) Explain GOTO Statement with syntax and example.
- 6) Explain for loop in PL/SQL with example.

**Q3 Answer any 4 from the following.**

**20  
Marks**

- 1) Explain Lost update problem of concurrent executions with example.
- 2) What is Deadlock? Explain Deadlock prevention in detail.
- 3) Explain Log based recovery technique.
- 4) Explain ACID properties of transaction with example.
- 5) Explain the process of ARIES algorithm for recovery.
- 6) Explain the following terms in detail with example:
  - a. Grant
  - b. Revoke

**Q4 Answer any 3 from the following.**

**15  
Marks**

- 1) What is B-Tree Indexing? Explain in detail with example.
- 2) Explain Nested Triggers with example.
- 3) Explain Case expression in PL/SQL with example.
- 4) Write a PL/SQL block to find the reverse of a number using while loop.
- 5) Explain two phase locking protocol(2PL) in detail.
- 6) Write a short note on Undoing Changes with ROLLBACK.