



17332

21314

3 Hours/100 Marks

Seat No.

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- Instructions :** (1) **All** questions are **compulsory**.
(2) Answer each next main question on a **new** page.
(3) Illustrate your answers with neat sketches **wherever** necessary.
(4) Figures to the **right** indicate **full** marks.
(5) Assume suitable data, if **necessary**.
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MARKS

1. i) Attempt **any six** of the following : **12**
- a) What is data redundancy ?
 - b) Describe data independence with its type.
 - c) State weak and strong entity set.
 - d) List any four DDL commands.
 - e) Describe candidate key.
 - f) Explain shared lock and explicit lock.
 - g) What is select operation in relational algebra ? Give one example.
 - h) Write the syntax for creating a view.
- ii) Attempt **any two** of the following : **8**
- a) Explain any four functions of DBMS.
 - b) Explain tuple relational calculus with example.
 - c) Explain any four string functions with example.
2. Attempt **any four** of the following : **16**
- a) Explain three tier architecture with diagram.
 - b) Explain normalization with example.
 - c) Describe savepoint and rollback commands with example.
 - d) What is data abstraction, instances and schema ?
 - e) Write a program to find largest of two numbers.
 - f) Explain while loop with example.
3. Attempt **any four** of the following : **16**
- a) Explain domain integrity constraint with example.
 - b) Compare between network and hierarchical model.

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- c) List and explain types of DBMS users.
- d) What are sequences ? Write syntax for creating sequence.
- e) Explain block structure of PL-SQL.
- f) Write syntax of insert command. Demonstrate with suitable example.

4. Attempt **any four** of the following :

16

- a) Explain three levels of data abstraction with suitable diagram.
- b) Identify the laws for following relation :
 - i) $R \circ (S \circ T) = (R \circ S) \circ T$
 - ii) $R \circ S = S \circ R$
 - iii) $R \cap \phi = \phi$
 - iv) $R \cup \phi = R$.
- c) List and explain set of operators in SQL with example.
- d) Explain any four aggregate functions with their examples.
- e) What is snapshot ? Write the syntax for creating a snapshot.
- f) What are exceptions ? Explain its types.

5. Attempt **any four** of the following :

16

- a) Explain ACID properties.
- b) What is cursor ? Explain types of cursors.
- c) Explain 'Group by' in SQL with suitable example.
- d) Describe following terms :
 - i) unique indexes
 - ii) composite indexes.
- e) Write a PL-SQL program to print numbers from 1 to 15 using for loop.
- f) What are synonyms ? Write a syntax for creating a synonym.

6. Attempt **any four** of the following :

16

- a) Explain shared and exclusive type of lock.
 - b) Explain states of transaction with neat diagram.
 - c) Explain trigger with suitable example.
 - d) Explain generalization of ER with suitable diagram.
 - e) Explain BCNF with example.
 - f) What is concurrent schedule ? Explain with example.
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