

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Fifth Semester of B. Tech. Examination (CE/IT)

November 2013

IT303 Advanced Database Management System

Date: 25.11.2013, Monday

Time: 10:00 a.m. To 01:00 p.m.

Maximum Marks: 70

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION - I

Q - 1

- (a) What is a view in database? What are the benefits of using views? Illustrate with an example. [04]
- (b) List any six distributed database goals. Explain any one of them in brief. [03]

Q-2 Answer the following questions (Any Three) [12]

- (a) (1) Distinguish between data accuracy and data integrity, using an example that illustrates the difference.
- (2) What is real time transaction processing? Explain with an example.
- (3) List basic type of privileges. How to grant privileges through roles? explain with proper example.
- (4) What are the components of logical database structure of Oracle database? Explain in depth.
- (b) What are the basic types of cursors? Explain anyone with an example. [02]

Q - 3 Attempt the following:

- (a) Construct a B⁺-tree for the following set of key values: [08]
- (5, 3, 21, 9, 1, 13, 2, 7, 10, 12)

Values are added in given order only. Construct B⁺-tree for cases where number of pointers is four in one node.

After construction of B+ tree perform following operations.

(1) insert 4

(2) insert 8

After insertion operation perform following operations.

(3) delete 2

(4) delete 21

- (b) Answer the following questions (Any Two) [06]

- (1) Differentiate Homogenous and Heterogeneous Distributed Database System.
- (2) What are subprograms in PL/SQL programming environment? Explain in brief.
- (3) Explain how a TP monitor manages memory and processor resources more effectively than a typical operating system.

SECTION – II

Q - 4 Attempt the following:

[04]

- (a) (1) Differentiate between dense indices and sparse indices.
(2) What do you mean by exception and how to trap non-predefined database server errors?

- (b) What happens if data is not properly partitioned? Which type of imbalance can happen and how to solve it?

[03]

Q-5 Answer the following questions (Any Three)

[12]

- (a) (1) State the difference between Object Oriented Model and Relational Database Model with an example

(2) What is nesting and un-nesting in object based database? Explain in detail.

(3) For each of the partitioning techniques, give an example of a query for which that partitioning technique would provide the fastest response.

(4) What do you mean by pipelined parallelism? Describe the advantages and disadvantages of pipelined parallelism.

- (b) Explain in brief oracle database objects.

[02]

Q - 6 Answer the following (Any Three)

[12]

- (a) (1) What are the methods for creating persistent objects?

(2) Give the differences between client server architecture and a centralized computing system.

(3) Why the bucket overflow occurs in hashing and how to handle bucket overflow problem?

(4) What Are the Key Elements of Parallel Processing? Explain any one element in detail.

- (b) What are the three parts available in a trigger description? Explain with an example.

[02]
