

**CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY****Fifth Semester of B. Tech. (CE) Examination****March - April 2018****CE314 Advanced Database Management System****Date: 03.04.2018, Tuesday****Time: 01:30 p.m. To 04:30 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 Answer the following:**

- (a) List data dictionary content. Explain any two of them in detail. [04]
- (b) Do database views affect query performance? Justify with an example. [03]

**Q – 2 Do as Directed.**

- (a) Answer any *Three* [12]
1. Explain the concept of GRANT and ROLE with example.
  2. Explain oracle architecture in detail.
  3. Differentiate view and materialized view.
  4. What is data encryption? Explain RSA algorithm in detail.
- (b) What do you mean by table-space? [02]

**Q – 3 Do as Directed.**

- (a) Construct a B+ Tree for the following set of key values: [06]  
(1, 4, 7, 10, 17, 21, 31, 25, 19, 20, 28, 42)  
Values are added in given order only. Construct B+-tree for cases where number of pointers is four in one node.  
What is the key value at root node?
- (b) If A=7, B=6, C=3 and D=UNK [04]  
State the truth value for the following given expression  
(1) A=B OR ( B>C AND A>D )  
(2) A>B AND ( B<C OR IS\_UNK(A=D) )
- (c) When is it preferable to use a dense index rather than a sparse index? Explain your answer. [04]

**OR**

- (c) What are the causes of bucket overflow in a hash file organization? What can be done to reduce the occurrence of bucket overflows. [04]

## SECTION – II

**Q - 4 Answer the following:**

- (a) What are basic types of failure that can occur in a distributed system? [04]
- (b) In a range selection on a range-partitioned attribute, it is possible that only one disk may need to be accessed. Describe the benefits and drawbacks of this property. [03]

**Q – 5 Do as Directed.**

- (a) What are the basic steps of query processing in detail? Explain using neat diagram. [05]

**OR**

- (a) Under which situation will it be beneficial to have replication or fragmentation of data? Explain using proper example. [05]
- (b) List and explain any five Hadoop Ecosystem tools. Draw neat diagram of Hadoop Ecosystem. [05]
- (c) How does the concept of an object in the object-oriented model differ from the concept of an entity in the entity-relationship model? [04]

**Q - 6(a) Answer any *Three*.** [12]

1. Differentiate homogeneous and heterogeneous distributed databases.
2. How objects are stored in tables in object relational databases (ORDB). Give an example of creating and using object tables.
3. Differentiate inter-query and intra-query parallelism.
4. Explain the components of distributed database management system in detail.

- (b) What is NoSQL? [02]

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