

5E3254

Roll No. : \_\_\_\_\_

Total Printed Pages : 2

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B. Tech. (Sem. V) (Main/Back) Examination, December - 2013  
Computer Science (Common for Computer & IT)  
5CS4 Data Base Management System

Time : 3 Hours]

[Total Marks : 80

[Min. Passing Marks : 24

*Attempt any five questions. Selecting one question from each unit.  
All questions carry equal marks. Schematic diagrams must be  
shown wherever necessary. Any data you feel missing suitably  
be assumed and stated clearly. Units of quantities used /  
calculated must be stated clearly.*

Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)

1. NIL 2. NIL

### UNIT - I

- 1 (a) Describe the structure of a DBMS. How it is different from RDBMS ? 8  
(b) Explain DBA and data dictionary in brief. 8

OR

- 1 (a) Explain Network and object oriented model. What are the role of these models in database design ? 8  
(b) Differentiate between :  
(i) Ternary relationship and Aggregation  
(ii) Entity and attribute. 8

### UNIT - II

- 2 (a) What is the difference between relational algebra and relational calculus ? 8  
(b) Explain expressive power of algebra and calculus. 8

OR

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[Contd...

- 2 (a) Discuss the various types of keys that are used in relational model. 8
- (b) Discuss the difference between five join operation : Theta join, Equijoin, Natural join, Outer join and semijoin. 8

### UNIT - III

- 3 (a) Describe the concept of full functional dependency (FFD). 8
- (b) Define BCNF. How does it differ from 3 NF ? Why it is considered a stronger form of 3 NF? 8

OR

- 3 (a) State the properties of transaction. 8
- (b) Define recoverable and cascadeless schedule. 8

### UNIT - IV

- 4 (a) Explain concurrency control. What is lock based protocol ? 8
- (b) What is time stamp based protocol ? Explain its pitfall. 8

OR

- 4 (a) What are database failures ? Explain database recovery. 8
- (b) Explain forward and backward recovery, also differentiate between them. 8

### UNIT - V

- 5 (a) Distinguish between primary index and secondary index. 8
- (b) What is splitting of node in B++ tree ? 8

OR

- 5 (a) What is Hash file organization ? What is hash index ? 8
- (b) What is bit map index ? Explain with examples. 8

