

**B.TECH SEM – V (2007 COURSE) (COMPUTER ENGG.) : WINTER  
- 2017**

**SUBJECT: DATABASE MANAGEMENT SYSTEM**

Day **Saturday**  
Date **20/01/2018**

Time **02.30 PM TO 05.30 PM**  
Max. Marks : 80.

**W-2017-2458**

**N.B.:**

- 1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from Section-I and any **TWO** questions from Section-II.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Draw neat labeled diagrams **WHEREVER** necessary.
- 4) Figures to the **RIGHT** indicate full marks.

**SECTION-I**

- Q.1**
- a) Explain advantages of DBMS over File Processing System. **(05)**
  - b) Define Functional Dependencies? State the difference between Trivial and Non-Trivial functional dependencies. **(04)**
  - c) Explain using suitable example Sub-Query and Nested Query. **(05)**
- Q.2**
- a) Explain various components of Database System and the overall structure of DBMS. **(07)**
  - b) Explain in detail the Entity Integrity and Referential Integrity constraints. **(06)**
- Q.3**
- a) Give an example of relation schema R and set of dependencies such that R is in BCNF, but not in 4 NF. **(06)**
  - b) What is Relational Calculus? Differentiate between Relational Algebra and Relational Calculus. **(07)**
- Q.4**
- a) Describe the concept of Cursor and how it is used in Embedded SQL. Explain commands used in Embedded SQL. **(07)**
  - b) Distinguish between following: **(06)**
    - (i) DDL and DML commands.
    - (ii) Dynamic and Embedded SQL.

**SECTION-II**

- Q.5**
- a) Explain in detail Shadow-Paging Technique. **(05)**
  - b) Explain intersection operation on B+ tree with suitable example. **(05)**
  - c) State and explain the advantages of Distributed Database System. **(04)**
- Q.6**
- a) Explain in detail importance and factor to be considered for Query Optimization. **(07)**
  - b) State and elaborate the difference between Static and Dynamic Hashing. **(06)**
- Q.7**
- a) What is Deadlock? Explain the different techniques used to remove deadlocks in database. **(07)**
  - b) List and explain the different properties of a Transaction. **(06)**
- Q.8**
- a) Explain various issues that decide the time cost of communication between client and server. **(07)**
  - b) Compare and Contrast Data Warehousing and Data Mining. **(06)**