[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2066)

16113(J) June-16

B. Tech 6th Semester Examination

Database Management System (NS)

CS-321

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all selecting one question from each of the sections A, B, C & D of the question paper and all subpart of question no. 9 (section-E) which is compulsory. All questions carry equal marks.

SECTION - A

1. (a) What is database system? Discuss the advantage of a database system. (10)

   (b) Explain three level architecture of DBMS. (10)

2. (a) Define the term set type. List and explain set types allowed in CODASYL network model. (10)

   (b) Who is a DBA? List various responsibilities of DBA. (10)

SECTION - B

3. Explain various types of constraints on relationship types of the E-R model. (20)

4. (a) What is the role of join operations in relational algebra? Differentiate between equijoin and natural join? (10)

   (b) Why is BCNF considered simpler as well as stronger than 3 NF? (10)

[P.T.O.]

SECTION - C

5. (a) What are the advantages of having index on a file? List different types of single level indexes available. (10)

   (b) What are triggers? How are they created? Explain. (10)

6. What are log based recovery techniques? Explain deferred and immediate modification versions of log based recovery techniques. (20)

SECTION - D

7. (a) Discuss techniques for implementing query optimization. (10)

   (b) What are the advantages of object oriented database approach for database management? (10)

8. (a) What is transaction? List the properties of transaction. Why the concept of a transaction is important in concurrency? (10)

   (b) Explain two phase locking protocol? Explain variations of two phase locking protocol. (10)

SECTION - E

9. Explain the following terms:
   (a) Data dictionary
   (b) Database languages
   (c) Foreign key
   (d) Relational calculus
   (e) Query tree
   (f) Timestamp
   (g) System log
   (h) Distributed database
   (i) Hashing
   (j) Functional dependency. (10×2=20)