S.E.I.T. (III) (CBGS) 16/12/15

DBMS

QP Code : 5268

(3 Hours) **[Total Marks : 80**

N.B. (1) Question No.1 is compulsory.

(2) Solve any three questions out of the remaining questions.

(3) Make suitable assumptions if needed.

Q1) a) What is a database? Explain with examples. Also list the advantages of a database system.

b) Compare ER and EER models. (5)

c) Describe ACID properties. (5)

d) Write a note on views in SQL (5)

Q.2) a) Draw an ER diagram for the education database that contains the information about an in-house company education training scheme. The relevant relations are: (10)

Course (course-no, title)

Offering (course-no, off-no, off-date, location)

Teacher (course-no, off-no, emp-no)

Enrolment (course-no, off-no, stud-no, grade)

Employee (emp-no, emp-name, job)

Student (stud-no, stud-name, ph-no)

b) Refer education database mentioned in 2(a), write SQL queries for the following. (10)

i) List all the teachers who conduct the course titled "Database Systems"

ii) List all the courses offered in 'Thane' on 15/8/15.

iii) Find the course/s enrolled by "Monali"

iv) List all the employees who work as Teachers.

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Q.3) a) Discuss what is meant by each of the following terms (any 2) (10)

i) Database Authorization

ii) Referential Integrity

iii) Trigger

b) Describe concurrency control based on timestamp ordering. (10)

Q.4) a) Describe the Shadow Paging recovery technique. (10)

b) Describe the following Relational Algebra operations. (10)

i) Select ii)Project iii) Natural Join iv) Set Intersection

Q. 5) a) Describe BCNF and 4NF in detail. (10)

b) What is system catalog or metadata? Explain. (10)

Q. 6) a) Write a short note on (any 2) (20)

i) Query Optimization

ii) Relational Calculus

iii) Deadlock handling

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