

GUJARAT UNIVERSITY
B. E. Sem III (C.E.) (Old) Examination
Database Management System

Thursday, 3rd January, 2008]

[Time : 3 Hours
Max. Marks : 100

- Instructions :** (1) Attempt all questions.
(2) Answer to the two sections must be written in separate answer books.
(3) Assume suitable data if required.
(4) Figures to the right indicate full marks.

SECTION I

- 1 Answer Followings: (Any Five) 10**
a) Give definition of DBMS.
b) Explain instances and schemas
c) Explain data manipulation and DML.
d) Give functions of DBA.
e) What is Data Models.
f) Explain components of Query processor.
- 2 Give difference between DBMS and File System. 5**

OR

- 2 Explain Specialization and Generalization for E-R Diagrams. 5**
- 3 A university registrar's office maintains data about following entities : 8**
a) courses including number, credits, syllabus
b) courses offerings, including course number, year, semester, section-number, instructor.
c) students including std-id, name and program.
d) instructors including identification number, name, department and title
Construct E-R diagram. explain all assumption you make about mapping constraints.
- 4 A) Consider the employee database given below. Give expression in SQL for 12**
following queries. (Any Four) (assume values).
a) employee(emp-name, street, city) b) company (cpny-name, city)
c) works(emp-name, cpny-name, salary) d) manage(emp-name, mng-name)
a) Find the names of all employees who work for SBS.
b) Find all employee who live in same cities as the companies for which they works.
c) Find all employees who earn more than each employee of SBS.
d) Find company that has smallest payroll.
e) Find those company whose employee earn a higher salary, on average, than the average salary at SBS.
- B) Answer Followings.**
a) Explain difference between weak and strong entity set. 3
b) Explain distinctions among the terms primary key, candidate key and super key. 2
- 5 (A) Compute Closure of the following set F of functional dependencies for 5**
relation schemas R=(A,B,C,D,E).
A->BC, CD->E, B->D, E->A.
List candidate keys for R.
- (B) Explain First, second and Third Normal form. 5**

OR

- (B) Explain why 4NF is a normal form more desirable than BCNF. 5**

P. T. O.

SECTION II

- 6 Explain Followings. (Any Five) 25
- a) conflict serializability.
 - b) Two-Phase Locking Protocol.
 - c) Deadlock prevention Techniques.
 - d) Immediate database modification.
 - e) Sequential file organization.
 - f) Primary index, Dense and Sparse indices.
- 7 Explain ACID property of Transaction. 10
- 8 Answer Followings.(Any Five) 15
- a) What is RAID.
 - b) Explain steps of query processing.
 - c) Give Overview of Query Optimization.
 - d) Explain cache and main memory.
 - e) Explain Access time, Seek time, Data Transfer rate for performance measures of Disk.
 - f) Explain Checkpoints.

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