

III B.Tech I Semester Supplementary Examinations, November 2006
DATABASE MANAGEMENT SYSTEMS
(Information Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Draw the architecture of a DBMS and explain the functionality of each component in it. [16]
2. (a) Discuss the various DDL, DML commands with illustrations in SQL.
 (b) Why are null values not preferred in a relation? [12+4]
3. (a) What are the differences between static and dynamic files.
 (b) Discuss the techniques for allocating file blocks on disk. [8+8]
4. (a) Explain about projection based on sorting.
 (b) Explain about projection based on hashing. [8+8]
5. Show that the following equivalences hold and explain how they can be applied to improve the efficiency of certain updates.
 (a) $(r1 \cup r2) \cup r3 = r1 \cup (r2 \cup r3)$
 (b) $r1 \cup r2 = r2 = r2 \cup r3$
 (c) $\sigma_p(r1 - r2) = \sigma_p(r1) - \sigma_p(r2)$ [5+4+7]
6. (a) Construct an E-R diagram for university registrar's office. The office maintains data about each class, including the instructor, the enrollment and the time and place of the class meetings. For each student class pair, a grade is recorded. Determine the entities and relationships that exist between the entities. Also construct the tabular representation of the entities and relationships.
 (b) What is an entity type? What is an entityset? Explain the difference between the entity, entity type and entityset? [10+6]
7. (a) Consider two transactions as follows:
 Transaction 1: Fac_salary:=Fac_salary+1025.00
 Transaction 2: Fac_salary:= Fac_salary *1.1
 What precaution, if any, would you suggest if these were to run concurrently?
 Write a pseudo code program for these transactions using an appropriate scheme to avoid undesirable results.
 (b) Explain Wait-die and Wound-wait in Deadlock prevention? [8+8]
8. (a) What are different Recovery Techniques used in Transaction Failures?
 (b) Explain how System Crash and Media Failure occurs? [10+6]
