

B.E./ B.Tech (Full Time) DEGREE ARREAR EXAMINATIONS, APRIL/MAY-2014

Computer Science and Engineering

(Regulation 2008)

Fifth Semester

CS9024 – Advanced Database Technology

(Common to CSE and IT)

Time: 3Hours

Max. Marks: 100

Answer ALL questions

PART A - (10 x 2 = 20 Marks)

1. Brief on generalization in ER model.
2. Mention any two methods of database tuning.
3. How vertical fragmentation achieves data availability feature of distributed databases?
4. List the different types of failures in distributed database system.
5. What is the significance of multi version locking in OODB?
6. Illustrate the differences between the type constructors – Set and List.
7. What is data cube? Mention any two operations that can be performed on a data cube.
8. Mention any two features of web databases.
9. What are the major components of knowledge bases?
10. List any three data structures that support multimedia databases? Give the representation of any one.

PART B - (5 x 16 = 80 Marks)

11. i) Consider the following relation containing the attributes:
Bookid, subject_category_of_book, authorname and nationality_of_author.
Primary Key : Bookid
1) What is the highest normal form satisfied by this relation?
2) Suppose the attributes books_title and author_address are added , and the PK is changed to {authorname, books_title}, what will be the highest normal form satisfied by this relation? (8)
- ii) Illustrate the stages of query processing. (8)
12. a i) Explain the Client / Server architecture of distributed databases. (8)
a ii) Describe the concurrency control in distributed databases. (8)

Or

12. b i) Consider a company relation that is fragmented horizontally by **plant-no** and given as **Employee(name, address, salary, plant-no)**. Assume that each fragment has two replicas; one stored at the **Chennai** site and another stored locally at the plant site of **Trichy**. Describe a good processing strategy for the following queries entered at the **Madurai** site: (8)
(A.) Find all employees at the Chennai site.
(B.) Find the lowest paid employee at Cochin and Mumbai sites.

- (C.) Find the highest paid employee in the company. (8)
- ii) Explain 2 phase commit protocol of distributed databases. (8)

13. a i) a ii) Express the RDB schema of Fig. 13.a. in POSTGRES. (8)

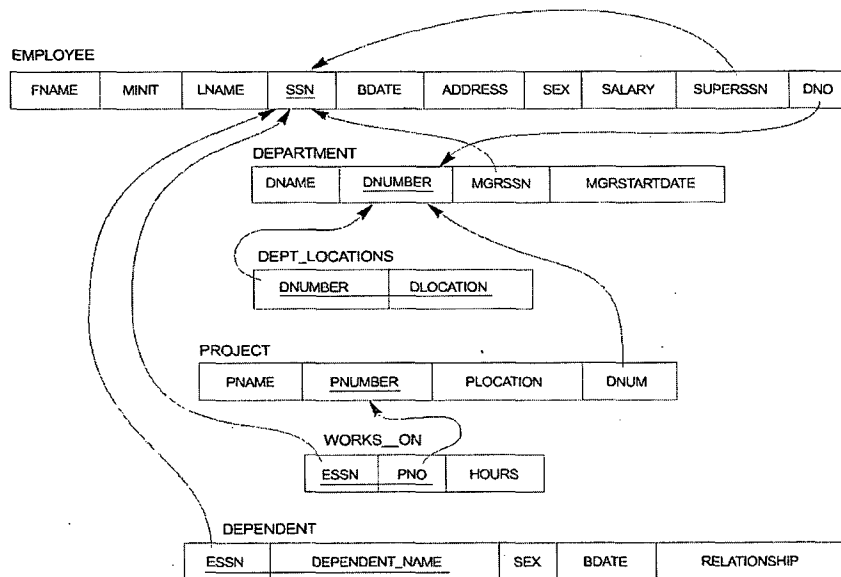


Fig. : 13. a.

- a ii) Give a comparison between OODM and ER model . (8)
- Or**
13. b i) Explain the mechanism to make the objects persistence in OODB. (8)
- b ii) Compare the features of GEMSTONE and JASMINE object databases with examples. (8)
14. a i) Give the benefits and limitations of data warehouse. (8)
- a ii) Explain with examples, any four operations that can be performed on a data cube. (8)
- Or**
14. b i) Explain the architecture of mobile database with a neat diagram. (8)
- b ii) Compare and contrast the CGI and API (8)
15. a i) Illustrate how active databases help audit-trail applications. (8)
- a ii) Explain how video sources are represented in a multimedia database. (8)
- Or**
15. b i) Explain deductive databases with suitable examples. (8)
- b ii) What are range queries, neighbour queries and joins with respect to spatial database? Give example for each. (8)