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05SCE13

**First Semester M.Tech Degree Examination, May/June 08
Database Management Systems**

Time: 3 hrs.

Max. Marks:100

Note : Answer any FIVE full questions.

- 1 a. Define the terms Data model. Explain why relational data model is so popular. (04 Marks)
- b. Define foreign key why this concept is used for? How does it play a role in the join operation? (06 Marks)
- c. Figure 1 shows an ER schema Map this schema into a relational schema and specify all PKs and FKs.

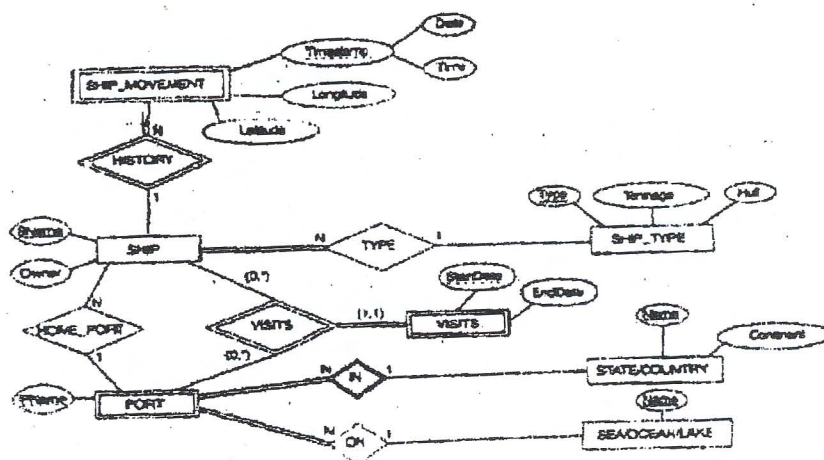


Fig 1(c)

(10 Marks)

- 2 a. Discuss the problem of spurious tuples and how we may prevent it. (04 Marks)
- b. Consider the following universal relation R(A,B,C,D,E,F) and the set of functional dependencies
 $F = \{A \rightarrow BCDEF, BC \rightarrow ADEF, B \rightarrow F, D \rightarrow E, D \rightarrow B\}$
 Apply normalization until you cannot decompose the relation further state the reasons behind each decomposition. (12 Marks)
- c. Consider a relation R (A,B,C,D,E) with the following dependencies.
 $AB \rightarrow C, CD \rightarrow E, DE \rightarrow B.$
 Is AB a candidate key of relation R? If not is ABD? Explain your answer. (04 Marks)
- 3 a. Write an algorithm to identify the loss less (non additive) join property. (10 Marks)
- b. List and explain methods for implementing joins in query optimization. (10 Marks)
- 4 a. What is the difference between the constrained write and the unconstrained write assumptions? Which is more realistic? (04 Marks)
- b. What are the steps followed when the following commands are
 i) Read - item (X)
 ii) Write - item (X) (06 Marks)
- c. Explain shadow paging with an example. (10 Marks)

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- 5 a. What is cascading rollback? Explain with an example. (10 Marks)
b. Explain Domain key normal forms. (05 Marks)
c. Define the term functional dependency and explain trivial and non - trivial functional dependency. (05 Marks)
- 6 a. List and explain types of issues addressed by data base security (05 Marks)
b. Explain multimedia database concepts (05 Marks)
c. What are statistical databases? Explain statistical database security. (10 Marks)
- 7 a. List and explain the reasons for developing distribution databases. (08 Marks)
b. With a block diagram give the software components to build distributed databases. (04 Marks)
c. With a block diagram briefly explain the architecture of distributed databases. (08 Marks)
- 8 a. Write a note on:
i) Query optimization in ORACLE
ii) Object relational features of ORACLE. (12 Marks)
b. Write graphical notations for representing ODL schemes. (08 Marks)
