1) (a) How does database system differ from conventional file processing system?

(b) What is data model? Briefly Discuss different types of data models?

2) Consider the following statements:

In a Departmental store, there are various departments in the store.One department sells many items. Some items may be sold by more than one department. A department has many employees and employee can belong to atmost one department. A unique no called internal item no assigned to every item of store. A supplier can supply more than one item. Every item is supplied only one supplier at a time.

Draw an E-R diagram and convert it to a Relational Schema. List some important queries which can be satisfied by the system.

3) (a) Explain the term Specialization, Generalization and Aggregation.

(b) Explain the following Relational algebra operation:

(i) Projection (ii) Selection (iii) join

4) (a) What is Entity Integrity?

(b)Describe the following noram forms:

1NF,2NF,3NF

5) Consider the database with the following relations:

emp (ssn#,ename,address,salary,D-no)

dept (D-no#,Dname,mgrssn)

for each query write the required expression in SQL:

(a) Retrive the name and address of employee whose name is 'JOHN'.

(b) Retrieve the name of employee whose address is 'Ranchi' and salary is greater than rs 20,000.

(c) Retrieve the name and address of all employees who works for the 'Research' department.

6) (a) What is transaction? Explain "ACID" properties of transaction.

(b) Discuss different transaction states with diagram.

7) (a) Briefly explain Loss-Less join and Lossy join decomposition.

(b) Explain Database anomalies.

8) (a)What is Concurrency In Database Management System?Explain.

(b) What is Locking Scheme and how it is utilized in databse?