B5.2R3: OBJECT ORIENTED DATABASE MANAGEMENT SYSTEMS

NOTE:

1. **Answer question 1 and any FOUR questions from 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours **Total Marks: 100**

1.

a) What is the purpose of inheritance? How does object oriented technique help produce flexible and extensible software?

b) What are the advantages of polymorphism and dynamic binding?

c) While using object oriented analysis multiple inheritance in type hierarchy occurs when a certain subtype T is a subtype of one or more than one types and hence inherits the function of one or more than one super type. State whether the sentence is true or false. Justify your answer.

d) What is the virtual member function? How much does it cost to call a virtual function compared to calling a normal function? Can destructor be virtual? What is the purpose of a virtual destructor?

e) What is active database? How does it differ from object-oriented database?

f) What is multimedia database? How does it differ from conventional database? What are the different types of multimedia data?

g) What is persistent programming language? How do they make object persistent?

(7x4)

2.

a) What is relational database management system? What is object oriented database management system? Differentiate between the conceptual design of object database and relational database.

b) What is the importance of checkpoints in the database management system? How checkpoints are used in the system log file of database management system?

([3+3+8]+4)

3.

a) Explain how object management group standard (OMG) – CORBA allows object to communicate in distributed heterogeneous environment, providing transparency across network, operating system and programming language boundaries.

b) What do you understand by a version of a configuration in database management system? Give differences between versions and configurations. What is concurrent engineering?

(12+6)

4.

a) What is data definition and a data manipulation in object database *02* differs from data definition and data manipulation in object database object store.

b) In object-oriented approach polymorphism or operation overloading allows the same operation name or symbol to be bound to two or more different implementation of the operation, depending on the type of object to which operation is applied. State whether the sentence is *true* or *false* and justify your answer.

c) What is distributed database management system? How does it differ from object oriented database management systems?

(12+2+4)

5. What do you mean by a recovery in database management system? What is the necessity of recovery? What are the possible reasons for a transaction to fail in the middle of the execution? What is the transaction processing?

(18)

6.

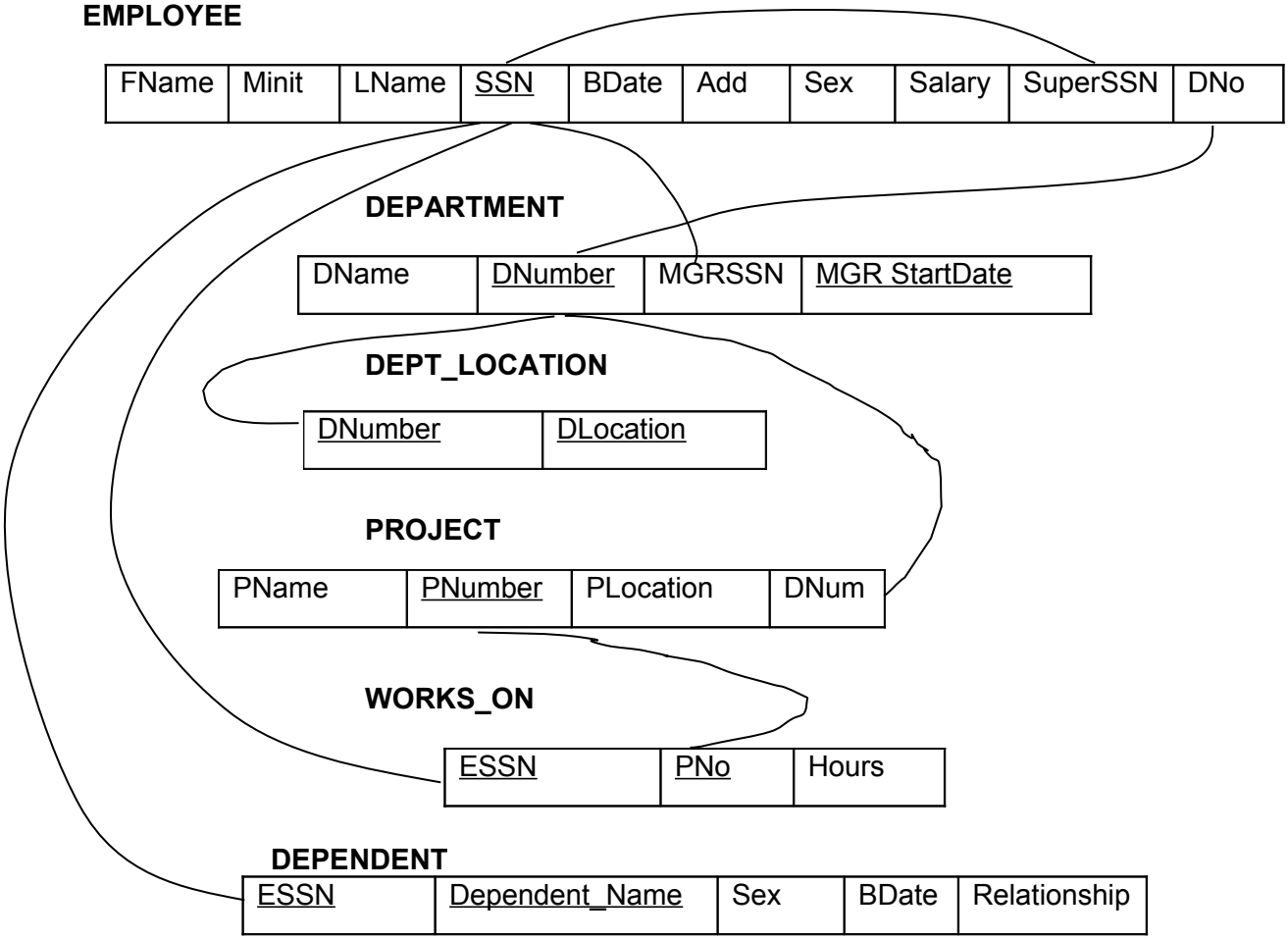
a) FDBS is an Integration of autonomous database system. State whether FDBS is a type of Distributed Database System. Discuss the issues affecting the design of FDBSs (Federated database).

b) What is the data mining and data warehouse? Explain data mining process as a part of the knowledge discovery process in brief.

c) List the main features of an oracle distributed database management system and draw the block diagram of it.

([3+7]+4+4)

7. Consider the following database schema, where underline indicates primary or foreign key.



Write a SQl Query to retrieve the following data:

a) Make a list of all project numbers for projects that involve an employee whose last name is "smith', either as a worker or as a manager of the department that controls the project.
b) Retrieve the name of each employee who has dependent with same first name and same sex as the employee.
c) Retrieve the name of each employee who works on all projects controlled by department number 5.
d) List the name of managers who have at least one dependent.
e) Retrieve all employees in department 5 whose salary is between Rs. 30,000 and Rs. 40,000.

(4+4+4+4+2)