B4.3-R4: OBJECT ORIENTED DATABASE MANAGEMENT SYSTEMS

NOTE:

1. **Answer question 1 and any FOUR from questions 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) How does object oriented approach differ from object based approach? Give example of object based and object oriented language.
b) What do you mean by overloading of a function? When do we use this concept?
c) Differentiate between Object Oriented Data Modeling vs. Entity Relationship Data Modeling.
d) How to make XML documents consistent?
e) How does data mining relate to information processing and on-line analytical processing?
f) Explain the Architectural Stack Diagram for Object-Oriented Data Model with the help of a neat sketch.
g) The object relationships are categorized based on the degree of sharing and degree of life time dependency. Explain how the object relationships are modeled in object-oriented programming.

(7x4)

2.

a) Explain the similarities and differences between Object Definition Language and ER model.
b) Several approaches have been proposed to make transient programming language objects persistent. Explain following approaches for persistent object.
   i) persistence by class
   ii) persistence by creation
   iii) persistence by marking
   iv) persistence by reachability
c) What is Object Oriented Database System? Explain mandatory features that an object-oriented database system must satisfy.

(6+6+6)

3.

a) Differentiate between Object Query Language and Structured Query Language. Write the syntax of basic statement of Object Query Language.
b) Explain the following concept with suitable example in object oriented Database paradigm:
   i) Association
   ii) Overriding Inheritance
   iii) Multiple Inheritance
c) What is semantic metadata? How to capture the semantic of the object in object oriented database management system using semantic metadata model?

(6+6+6)

4.

a) What is a friend function? What are the merits and demerits of using friend functions?
b) What is Object Definition Language (ODL)? What are the objectives of Object Definition Language?
c) Describe how data are shared by functions in an object oriented program.

(6+6+6)

5.

a) A core object-oriented data model consists of the following basic object-oriented concepts: Object and object identifier, attributes and methods, Class and Class hierarchy and inheritance. Briefly explain each component and its significance in object oriented data model.

b) There are three choices for data cube materialization: (1) pre compute only the base cuboids and none of the remaining non-base cuboids (no materialization), (2) pre compute all of the cuboids (full materialization), and (3) selectively compute a proper subset of the whole set of possible cuboids (partial materialization). Explain these methods with example.

(9+9)

6.

a) What is Semi Structured Data Model? What does the Semi-Structured Data Model do? Compare and Contrast Semi Structured model with relational Model? What are the issues with Semi-Structured Data?

b) The enhanced functionality of ORDBMS raises several implementation challenges. Explain following challenges: Storage and access methods; Query processing and optimization; Method security; Method caching.

(10+8)

7. Explain the followings:

a) Booch methodology for Object Oriented Design

b) Manipulation objects in Object Store database

c) The need for formulative middleware standard like CORBA in distributed object oriented systems.

(6+6+6)