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) What are the loopholes of procedure oriented language? Why is object oriented programming required?

b) What is Polymorphism? Explain benefits of polymorphism with example.

c) What is Virtual Function in C++? Explain the features and benefits of Virtual Function?

d) Define the term E-R Diagram. Give example for ER model. Write steps to convert ER Model into OO relationship model.

e) What is a well formed XML document? How is it different from validated XML document?

f) What is data cube in OLAP (Online Analytical Processing)? Explain the concept of cuboids multidimensional view of data.

g) Explain the terms: Class, Attributes and Relationship in ODL. What is Inverse relationships and Multiplicity of relationship in ODL? Give example for both.

(7x4)

2.

a) Explain with an example the concept of Generalization, Association, Composition and Aggregation in object hierarchy? Differentiate Aggregation with Composition.

b) Give architectural differences between OODBMS, RDBMS and ORDBMS.

(9+9)

3.

a) What is the use of OQL? Explain various features of OQL. Write syntax for object assignment and creation in OQL.

b) What is the significance of friend function in object oriented programming? How it is used for operator overloading?

(9+9)

4.

a) Suppose that you have been hired as a consultant to choose a database system for your client's application. For each of the following applications, state what type of database system (relational, persistent programming language based OODB, Object relational) you would recommend. Do not specify a commercial product. Justify your recommendation.
   i) A computer aided design system for a manufacturer of airplanes.
   ii) A system to track contribution made to candidates for public office.
   iii) An information system to support the making of movies.

b) What is purpose of using DTD for XML? Explain format and attributes of DTD with example.

c) Discuss, how serializability is used to enforce concurrency control in a database system.

(6+6+6)

5.

a) Describe object-oriented database management system with example. Also explain its components and significance.

b) What is meant by nested transaction? Discuss with an example the various operations used in nested transaction.

(9+9)

6.

a) What is information integration? Explain functions done by information integration. What is Semi-structured data? Explain with an example representation of semi-structured data.

b) How Object database stores object and data? When do we use OODBMS? List and briefly define the various standards and groups for OODBMS.

(9+9)

7.

a) Explain the terms: Array, Pointer, Structure, Class, and Object in OOP with example. How multiple inheritances is implemented in C++? Explain with example.

b) What is CORBA? Explain the architecture of CORBA with special reference to ORB, IDL and protocols.

(9+9)