B5.2-R3: 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) Abstraction is a fundamental human capability that permits us to deal with complexity. Justify this statement.

b) In object oriented analysis and design, aggregation is considered as a special form of association. Explain with an example.

c) Give reasons why it is necessary to override a feature in object oriented programming.

d) How does the concept of an object in the object oriented model differ from the concept of an entity in entity relationship model?

e) What is the meaning of persistent and transient Objects in the object oriented databases? Can a single class have both types of instances in object oriented databases?

f) Qualification improves semantic accuracy and increases the visibility of navigation paths in object oriented analysis and design. Explain with an example.

g) "Underestimating multiplicity can restrict the flexibility of an application in object oriented technique". Justify the statement.

(7x4)

2.

a) Prepare an Object diagram for a graphical document editor that supports grouping, which is a concept used in a variety of graphical editors. Assume that a document is composed of several sheets. Each sheet contains drawing objects, including text, geometrical objects and groups. A group is simply a set of drawing objects, possibly including other groups. A group must contain at least two drawing objects. A drawing object can be a direct member of at most one group. Geometrical objects include circles, ellipses, rectangles, lines and squares.

b) Write the necessary steps which are required to implement an "Object Model".

c) Differentiate between overloading and overriding of methods in object oriented programming with suitable examples. Explain using C++ code.

(8+6+4)

3.

a) For which category of application, the use of object data management is more appropriate? State any three relevant application pertaining to the use of object data management principles.

b) Enumerate the strengths and weaknesses of object oriented database management system.

c) Differentiate between the concept of Data independence in distributed DBMS and the concept of data independence in centralized DBMS.

(6+8+4)

4.

a) What is CORBA? Explain the services provided by the CORBA to support the integration and interoperation of distributed objects.

b) What is the meaning and type of distributed database? Define the term Distributed DBMS. Explain the objectives of distributed databases.

(8+10)

5.

a) With neat sketch, explain the architecture of typical data mining system.

b) What is a database authorization? How database authorization is done in relational database management system?

c) Give comparison between On Line Transaction Processing (OLTP) and On Line Analytical Processing (OLAP).

(8+6+4)

6.

a) SQL Extension and Extension to an OO Programming are two approaches used for object query language. Compare and contrast between "SQL Extension" and "Extension to an OO programming language".

b) Explain, how the concept of data identity in relational database management system differs from the concept of Object identity in object oriented database management system.

c) What is Object Management Group (OMG) reference model? Explain the responsibilities, purposes and major components of OMG reference model.

(4+6+8)

7.

a) Differentiate the following Database concepts:
   i)   Remote Update Vs. Distributed Update
   ii)   Remote Transaction Vs. Distributed Updates.

b) What is the meaning of nested transactions in object oriented database management system? Discuss various operations used in nested transaction.

c) What is object oriented database? What is the requirement of object oriented databases? Explain the advantages of object oriented databases over relational databases.

(6+6+6)