

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) Differentiate literals and objects in an OODBMS.
 - b) Enumerate the requirements to decompose applications into operations and placement of operations in classes.
 - c) Justify how the Object model is geared towards the database systems.
 - d) What are the principle features of Object Query Language?
 - e) Define Abstract Data Type. Compare Algebraic ADT and Logical ADT.
 - f) Elucidate the additions required to convert C++ to a persistent form.
 - g) Narrate the shortcomings of Document Type Definitions.

(7x4)

2.
 - a) Compare and contrast the features provided by the Class model, Relational Model and UML data model.
 - b) Discuss the efficiency mechanisms for movement of data in the OODBMS implementation.

(9+9)

3.
 - a) Explain how the extensible storage manager implements the concept of extensibility in an ORDBMS.
 - b) Define ODL. What are multi-way relationships in ODL? Illustrate with a suitable example.
 - c) Discuss the concept of Schemata in C++. Justify its role in making C++ a persistent language.

(6+6+6)

4.
 - a) Illustrate with example the concept of Reusability, Polymorphism and Inheritance with suitable examples. Differentiate Generalization and Specialization.
 - b) Develop an ODMG application to support the use of Electronic mail between groups of computer users. The application must provide support to send/receive messages and store information. The system should also provide an administrator to perform basic management tasks.

(9+9)

5.
 - a) Enumerate and explain the methods to distinguish transient and persistent data.
 - b) Justify the motivation for Nested relation and complex types with suitable examples.

(9+9)

6.
 - a) Discuss the techniques used for garbage collection in OODBMS implementation.
 - b) Compare and contrast the features in RDBMS, OODBMS and ORDBMS.

(9+9)

7.
 - a) Enumerate the features of CORBA that facilitate communication among distributed objects.
 - b) Narrate the features of the O₂ Database Engine.

(9+9)