

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 is well formed XML document? How it is differ from validated XML document?
- b) What is data cube in OLAP (Online Analytical Processing)? Explain concept of cuboids in multidimensional view of data.
- c) Explain with an example concept of Generalization, Association, Composition and Aggregation in object hierarchy?
- d) What steps must be taken in order to maintain good object-oriented design or object relational design principles in data base modeling?
- e) Structured query language (SQL) is used in relational databases as an intermediary language by which application software can communicate with the database system. Object oriented databases have their own query language called OQL. How does the use of OQL compare to the use of SQL improve the performance in terms of application speed of the OODBMS?
- f) 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.
- g) How to make XML documents consistent?

(7x4)

2.

- a) What is an E-R Model? Give example for ER Model. Write steps to convert ER Model into Object Oriented Relationship Model.
- b) What are Class, Attributes, and Relationship in Object Definition Language (ODL)? What are Inverse Relationship and Multiplicity of Relationship in ODL? Give example of both.

(9+9)

3.

- a) Which are loop holes of procedure oriented language? Why we required object oriented programming?
- b) A Car rental company maintains a vehicle database for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number manufacturer, model, date of purchase, and color. Special data are included for certain types of vehicles.
 - Trucks: cargo capacity
 - Sports cars : horsepower , rental age requirement
 - Vans : number of passengers
 - Off road vehicles : ground clearance, drive train(four wheel drive)

Construct an object oriented database schema definition for this database. Use inheritance where appropriate.

- c) What is Object Oriented Data Model? Explain the Architectural Stack Diagram for Object-Oriented Data Model with the help of a neat sketch.

(6+4+8)

- 4.
- a) What is Object Query Language (OQL)? Explain various features of OQL. Write syntax for object assignment and creation in OQL.
 - b) What is information integration? Explain its functions. What is Semi-structured data? Explain with an example representation of semi-structured data.

(8+10)

- 5.
- a) How Object Database stored Object and Data? When to used OODBMS? List and briefly define various standards and groups for OODBMS.
 - b) The enhanced functionality of ORDBMS raises several implementation challenges. Explain challenges regarding Storage and Access Methods, Query Processing & Optimization, Method Security and Method Caching.

(8+10)

- 6.
- a) What is significance of friend function in Object Oriented Programming? How it is used for operator overloading?
 - b) Explain standard features available in *oracle* to support the object oriented database management concepts.

(9+9)

- 7.
- a) Describe object-oriented database management system with example. Also explain component and its significance in object oriented data model.
 - b) How Object views allow database developers to add OOP structures on top of their existing relational tables and enable them to develop OOP features with existing relational data?

(9+9)