No. of Printed Pages : **2**

Sl. No.

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) Explain different types of Polymorphism in Object Oriented Concepts.

(b) What are Pure Virtual Functions ? Explain with a suitable example.

(c) Discuss two objects that are deep equal but not shallow equal or explain why this is not possible.

(d) What is the role of Object Query Language ?

(e) What is active database ? How does it differ from object oriented database ?

(f) What are the primary characteristics of an OID (Object Identifier) ?

(g) Define Abstract Data Type (ADT). Compare Algebraic ADT and Logical ADT.

(7x4)

2. (a) Give a well formed XML document that corresponds to the Document Type Definition (DTD) given below :

```
<?xml version="1.0"?>
<!DOCTYPE employees [
<!ELEMENT employees (employee*)>
<!ELEMENT employee (firstname, familyname, comment)>
<!ATTLIST employee id ID #REQUIRED
                   manager IDREF #IMPLIED>
<!ELEMENT firstname (#PCDATA)>
<!ELEMENT familyname (#PCDATA)>
<!ELEMENT comment (#PCDATA)>
]>
```

(b) "OO programming paradigm is better than procedural programming." Comment.

(c) What is the role of a friend function in overloading a unary operator ? Explain with a code example.

(6+6+6)

3. (a) Discuss the similarity and differences in Class model, Relational Model and UML data model.

(b) How is Multiple Inheritance implemented in C++. Explain with a suitable example implemented in C++.

(9+9)

4. (a) "SQL-99 gives support for Object-Relational support". Comment with a suitable example.

   (b) Write short note on ORION database system. **(9+9)**

5. (a) Define virtual function. Discuss implementation differences of virtual function in C++ and Java with an example.

   (b) How is linear recursion used for specifying recursive queries ? Illustrate with an example.

   (c) Compare RDBMSs with ORDBMSs. Describe an application scenario for which you chose ORDBMS and explain why ? **(6+6+6)**

6. (a) What are the advantages of embedded query language ? Give an example of a embedded SQL query.

   (b) Draw and explain the three level architecture of the database system. **(9+9)**

7. (a) Discuss Semantic Data Model and OML statements to Insert and Delete.

   (b) Compare and Contrast SIM with SQL with examples. **(9+9)**

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