2015

(4th Semester)

COMPUTER SCIENCE

Paper No. : COMP–401

(Database Management System)

(Theory)

Full Marks : 70 *Pass Marks* : 45%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 45)

The figures in the margin indicate full marks for the questions

1. What is database and DBMS? What are the advantages of DBMS? Discuss about three-schema architecture for database development. 2+3+4=9

Or

What is data dictionary? Discuss about the levels of data independence. Discuss about the function of database administrator. 2+4+3=9

2. Discuss about the components of ER model. Explain step-wise procedure of how you develop an ER diagram using an example of tiny college. 4+5=9

Or

Explain different data models based on degree of abstraction. Explain attribute and its keys. What is entity? 4+3+2=9

3. What is normalization and denormalization? Explain 1st, 2nd and 3rd normal forms with examples. What is Boyce-Codd normal form? 2+6+1=9

Or

What is the role of relational algebra in DBMS? Explain select operator and project operator in relational operator. Explain different types of join with suitable examples. 3+3+3=9

4. Discuss about aggregate functions in SQL with example. Explain DDL, DML commands in detail with examples. Explain the syntax of creating a table. 4+3+2=9

Or

Explain different SQL constraints with examples. Explain the complete syntax of select statement. What are the different comparisons and logical operators used in it? How do you add and drop columns for a table? 3+2+2+2=9

(Continued)

5. What is cursor? Explain different types of cursor. How can you access the cursor in PL/SQL program? 2+4+3=9

Or

Explain triggers with suitable examples. Explain stored procedures with suitable examples. What are PL/SQL stored functions? How are they created? 2+3+2+2=9

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Paper No. : COMP–401

(Database Management System)

(Theory)

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

1. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

(a) A database management system is

(i) collection of interrelated data (✓)

(ii) collection of programs to access data ( )

(iii) collection of data describing one particular enterprise ( )

(iv) All of the above ( )

(b) Which of the following is not a level of data abstraction?

(i) Physical level ( )

(ii) Critical level (✓)

(iii) Logical level ( )

(iv) View level ( )

(c) In an entity relationship diagram, rectangles represent

(i) entity sets (✓)

(ii) attributes ( )

(iii) database ( )

(iv) tables ( )

(d) Disadvantage of file systems to store data is

(i) data redundancy and inconsistency ( )

(ii) difficulty in accessing data ( )

(iii) data isolation ( )

(iv) All of the above (✓)

(e) Which of the following is not a schema?

(i) Database schema ( )

(ii) Physical schema ( )

(iii) Logical schema ( )

(iv) Critical schema (✓)

(f) Data manipulation language enables users in

(i) retrieval of information stored in database ( )

(ii) insertion of new information into the database ( )

(iii) deletion of information from the database ( )

(iv) All of the above (✓)

(g) Which of the following is a data model?

(i) Entity-Relation model ( )

(ii) Relational data model ( )

(iii) Object-based data model ( )

(iv) All of the above (✓)

(h) Manager's salary details are hidden from the employee. This is

(i) conceptual level data hiding ( )

(ii) physical level data hiding ( )

(iii) external level hiding (✓)

(iv) None of the above ( )

(i) Which of the following is not a function of DBA?

(i) Network maintenance (✓)

(ii) Routine maintenance ( )

(iii) Schema definition ( )

(iv) Authorization for data access ( )

(j) Which of the following is database language?

(i) Data definition language ( )

(ii) Data manipulation language ( )

(iii) Query language ( )

(iv) All of the above (✓)

2. Write *(T)* for *True* or *(F)* for *False* against each of the following statements in the brackets provided : 1×5=5

(a) A file is a collection of similar records.

( )

(b) Database is not necessarily dependent on the applications that use it.

( )

(c) The data definition language (DDL) is used to create, read, update, and delete records in the database and to navigate between different records and types of records.

( )

(d) An index is frequently created for keys.

( )

(e) A record is a collection of fields arranged in a predefined format.

( )

3. Answer any *five* of the following in short : 2×5=10

(a) What is file in DBMS?

(b) What is candidate key?

(c) What is the degree of a relationship?

(d) What is subquery? Give an example.

(e) Write a short note on block structure of PL/SQL.

(f) What is functional dependency?

(g) What are the advantages of RDBMS?

(h) What is information system?

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