Total No. of printed pages = 6

CS 131504

Roll No. of candidate | | | | | | | | | | |

2017

B.Tech. 5th Semester End-Term Examination

Computer Science Engineering

DATABASE MANAGEMENT SYSTEMS

Full Marks – 100 Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *six* from the rest.

1. Answer the following : $(10 \times 1 = 10)$

(a) ———— is a combination of two of more. attribute used as a primary key

(i) Composite Key
(ii) Alternate Key
(iii) Candidate Key
(iv) Foreign Key

(b) Relational calculus is a

(i) Procedural language
(ii) Non-procedural language
(iii) Data definition language
(iv) High level language

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(c) Cartesian product in relational algebra is

(i) a Unary operator.

(ii) a Binary operator.

(iii) a Ternary operator.

(iv) not defined.

(d) DML is provided for

(i) Description of logical structure of database

(ii) Addition of new structures in the database system.

(iii) Manipulation and processing of database

(iv) Definition of physical structure of database system

(e) Conceptual design

(i) is a documentation technique.

(ii) needs data volume and processing frequencies to determine the size of the database.

(iii) involves modeling independent of the DBMS

(iv) is designing the relational mode

(f) An advantage of the database management approach is

(i) data is dependent on programs

(ii) data redundancy increases

(iii) data is integrated and can be accessed by multiple programs

(iv) none of the above

(g) Which are the two ways in which entities can participate in a relationship?

(i) Passive and active

(ii) Total and partial

(iii) All of the Above

(iv) None of the above

(h) To delete a database ———— command is used.

(i) delete database database_name

(ii) Delete database_name

(iii) drop database database_name

(iv) drop database_name

(i) In the relational models, cardinality is termed as

(i) Number of tuples.

(ii) Number of attributes.

(iii) Number of tables.

(iv) Number of constraints

(j) ———— requires that data should be made available to only authorized users.

(i) Data integrity

(ii) Privacy

(iii) Security

(iv) None of the above

Answer any *six* from the following :

2. (a) What is a weak entity? Give example. (3)

   (b) Define Primary key and Foreign Key. (3)

   (c) What is cardinality ratio? (3)

   (d) Differentiate between static and dynamic SQL. (3)

   (e) Explain third normal form with example. (3)

3. (a) What are the components of DBMS? (3)

   (b) Write about types of attributes in the ER model. (4)

   (c) Explain about Set operators in Relational algebra. (4)

   (d) What is normalization? (4)

4. (a) What is Serializability? (3)

   (b) Explain atomicity of a transaction. (4)

   (c) What is view? Write a SQL for creating a view. (4)

   (d) Draw an E-R diagram for the employee management system of a school. (4)

5. (a) Discuss BCNF with an example. (3)

   (b) How deadlock is detected in distributed DBMS? (4)

   (c) What are the advantages and disadvantages of DBMS? (4)

   (d) Write about desirable properties of transactions. (4)

6. (a) Explain select, project and Cartesian product operations in relational algebra with an example. (3 × 3 = 9)

   (b) Briefly write on data fragmentation. (3)

   (c) What is trigger? (3)

7. (a) A schema defined for Employee (3 × 4 = 12)

   Management System is:

   Employee : EmpID, Name, Address,

   Department, Designation, Salary

   Department : Dept ID, Name, Head ID

   (i) Create and insert data for the above schema

   (ii) Retrieve the details of employee who gets the maximum salary

   (iii) Give the name of the employee who heads the department where employee with EmpID = 3 works.

   (b) Write about pitfalls in relational database design. (3)

8. (a) What is data Integrity? Explain about Entity Integrity and Referential Integrity. (3 + 4 + 4 = 11)

   (b) Explain about the responsibilities of a DBA. (4)

9. Write short notes on the following : $(5 \times 3 = 15)$

(a) Semijoin

(b) Data recovery

(c) 4NF

(d) Concurrency control

(e) Data replication.
