Roll No.: 19823000 7

Total No. of Questions : 11] [Total No. of Printed Pages : 4

EG-212

B.E. III Semester (CGPA) CSE Examination 2018

DATABASE MANAGEMENT SYSTEM

Paper - CS-304

Time Allowed : Three Hours] *[Maximum Marks : 60*

Note : Total No. of questions 11. Question 1 is compulsory. Attempt one question (including all parts) from each unit. Assume missing data, if any.

Q.1. Explain the following questions in brief. 5×2=10

a) Define Schemas
b) Functions of DBA
c) What is Metadata?
d) What is Generalization / Specialization?
e) RDBMS

Unit - I

Q.2. a) Explain the following . 5
i) Aggregation
ii) Strong and Weak entity set

b) Write the difference between Database system and file system. 5

OR

Q.3. a) Compare different types of database models. 5

b) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted? 5

Unit - II

Q.4. a) Define domain integrity constraint entity integrity constraint and referential integrity constraint. 5

b) What is entity and attribute? Explain the entity types. 5

OR

Q.5. a) Explain Network Data Model with its advantages and disadvantages. 5

b) Define Super key. Candidate key, Primary key and foreign key. 5

Unit - III

Q.6. a) Represent the natural join operation of the relational algebra as a combination of Cartesian product, selection and projection operation. 5

b) What is Query Processing? Explain the steps involve in Query Processing. 5

OR

Q.7. a) Explain the following : 5

i) QUEL ii) QBE

b) Differentiate between relational calculus and relational algebra. 5

Unit - IV

Q.8. a) What is normalization? Explain 1NF and 2NF in brief. 5

b) Consider the following relation: 5

CAR_SALE (Car#, Date_sold, Salesman#, Commission% Discount_amt) Assume that a car may be sold by multiple salesmen, and hence {Car#, Salesman#} is the primary key. Additional dependencies are

Date_Sold→Discount_amt and

Salesman#→Commission%

Based on the given primary key, is this relation is 1NF, 2NF or 3NF? Why or why not? How would you successively normalize it completely?

OR

Q.9. a) Explain Multivalued dependencies and also describe 4NF with appropriate example. 5

b) Consider the relation schema R (P, Q, R,S) and the functional Dependencies PQ→R, R →S and S→P holds on R. List all the keys of relation R. 5

Unit - V

Q.10. a) Explain concurrency control and recovery in distributed database management system. 5

b) What is Distributed Database? Explain its security mechanism. 5

OR

Q.11. a) Compare the deferred modification and immediate modification technique of the log based recovery scheme for concurrent transactions? Why and how check points are used to perform such log-based recovery. 5

b) Define a Schedule. Differentiate between serial and serializable schedule. 5

❖❖❖❖❖❖❖

Total No. of Questions : 5 Total No. of Printed Pages : 3

16823013 2

EKS-202

B.E. III Semester (CGPA) CSE Exam. 2017

DATABASE MANAGEMENT SYSTEM

Paper : CS-304

Time Allowed : Three Hours

Maximum Marks : 60

Note: Attempt all questions. All questions carry equal marks.

Q.1. a) What is DBMS and what are component of DBMS? What are the advantages of DBMS over file oriented approach. 6

b) Explain the concept of physical data independence and its importance in database. 6

OR

a) Differentiate between two tier and three tier client/server architecture. 6

b) What is the difference between procedural DML and non procedural DML. 6

Q.2. a) Draw an ER diagram for a small marketing company database. Assume suitable data. 6

b) What is entity and attribute? Explain the entity types. 6

OR

a) Explain about integrity constraints. 6

b) Explain the various data models briefly with an example. 6

Q.3. a) Differentiate between relational calculus and Relational algebra? 6

b) Explain the join operator, its relevance and its various types. 6

OR

a) Discuss the different techniques for optimising the queries. 6

b) Consider the relations : 6

City (city-name, state)

Hotel (name, address)

City-hotel (hotel-name, city-name, owner) answer the following queries in relational algebra :

i) Find the names and address of hotels in Agra.

ii) List the name of cities which have no hotel.

Q.4. a) Prove that a relation which is in 4NF must be in BCNF. 6

b) Explain non loss decomposition and functional dependencies with example. 6

OR

a) Consider the universal relation 6

R = {A, B, C, D, E, F, G, H, I}

and the set of functional dependencies

F = {(A, B) → C, A → (D, E) B → F, F → (G, H), D → (I, J)}

What is the key for R? Decompose R into 2NF, then 3NF relations.

b) Explain 3NF and BCNF with suitable example. 6

Q.5. a) What is distributed database? Explain its security mechanism. 6

b) State and explain the three concurrency problems? 6

OR

a) What is transaction in database. Discuss properties of transaction? 6

b) Explain immediate update and deferred update of recovery techniques. 6

❖❖❖❖❖❖❖

EI-54

B.E. (IIIrd Sem.) (CGPA) CSE Examination-2015

DATA BASE MANAGEMENT SYSTEM

Paper : CS-304

Time Allowed : Three Hours
Maximum Marks : 60

Note : Attempt all question.
There are internal choice of questions.
All question carry equal marks.

Q.I (a) Describe the generalized arch tecture of a database system.

(b) What is the difference between a database schema anc a database state ?

or

(a) Discuss main categories of data models.

(d) Explain how an ER-schema is transformed to tables.

Q.II (a) What are the different type of integrity constraints ? Explain by giving suitable examples.

(b) What are triggers ? Explain with suitable example. How can they help in building robust database ?

or

(a) What are the various characteristics of SQL ? Discuss five aggregate functions with a suitable example ?

(d) Explain view in relational algebra.

Q.III (a) Explain Boyce-Codd normal form with example and also compare BCNF and 3NF.

(b) Describe NULL value anc dangling tuple problem.

or

(a) Explain lossless join decomposition with example.

(d) Explain multivalued dependency.

Q.IV (a) Explain serializability. A so. discuss the kinds of serializability.

(b) Explain the recovery process after system failure using checkpoint.

or

(a) Explain the concept of two-phase locking and show that it guarantees serialisability.

(b) Write short note on object-orient database design.

Q.V (a) Discuss about storage organization in oracle.

(b) What are background processes ? Explain in details.

or

(a) What are the advantages and disadvantages of distributed database management system ?

(d) What is procedural SQL (PL/SQL) ? Also explain the anonymous block.

Q.VI Write short notes on any four of the following—

(a) Oracle tods

(b) Serializability

(c) Tuple calculus

(d) Distributed databases

(e) Data independence

(f) Alternate key

EIS-54

B.E. (IIIrd Sem.) (CGPA) (CSE) Examination-2015

DATA BASE MANAGEMENT SYSTEM

Paper : CS-304

Time Allowed : Three Hours
Maximum Marks : 60

Note : Attempt all questions.
Each question carry equal marks.

Q.I (a) List differences between a file processing system and DBMS.

(b) Explain the difference between the two-tier and three tier client/server architecture.

or

(a) Describe five main function of a database administrator.

(b) Make comparison between the strong entity and weak entity.

Q.II (a) Explain the network database model with an example.

(b) Explain the followng features of ORACLE—

(i) Sequence

(ii) SQL loader

or

(a) Discuss the candidate key, primary key, super key, composite key and alternate key.

(b) Write short note on integrity constraints.

Q.III (a) Explain the basic relational algebra operations with the symbol used and example for each.

(b) What do you mean by the tuple relational calculus ? What are its operations.

or

Consider the relations—
EMP (ENO, ENAME, AGE, BASIC)
WORK_ON (ENO, DNO)
DEPT (DNO, DNAME, CITY)
Express the following queries in SQL—

(i) Find names of employees whose basic pay is greater than average basic pay.

(ii) Find the sum of the basic pay of all the employees, the maximum basic pay, the minimum basic pay and the average basic pay.

Q.IV (a) What do you mean by normalization ? Explain BCNF and 3NF with suitable example.

(b) What are the inference rule for functional dependencies ?

or

(a) Prove that a relation which is in 4NF must be in BCNF.

(b) What is query optimization ? Discuss various steps of optimization.

Q.V (a) How does a DBMS represent a relational query evaluation plan ?

(b) Write short note on transaction processing.

or

(a) Describe different types of transaction failures. What is meant by castastrophic failure ?

(b) What is time stamp ? How does the system generate time stamps ?

Q.VI (a) Write short note on databases on www.

(b) What do you mean by Oracle ? Give its architecture.

or

Explain the following terms—

(i) Table spaces

(ii) Blocks

(iii) Extents

(iv) Segments

———

Copies 100

Total No. of Questions : 6 Total No. of Printed Pages : 3

Roll No. 36031

EC-147

B.E. III Sem. (CGPA) Computer Science and Engineering Exam.-2012-13

DATABASE MANAGEMENT SYSTEM

Paper : CS-304

Time Allowed : Three Hours

Maximum Marks : 60

Note : Question No.1 is compulsory. Attempt all questions.

Q.1. Write answering only one or two lines each of the following questions:

i) Concept of data independence.

ii) Write about value of the attributes.

iii) Functions of data base administrator.

iv) Explain high level data model.

v) What is relational calculus?

vi) File processing and DBMS.

vii) What is normalization?

viii) Relational data model.

ix) What is Meta data?

x) Selection of attributes.

Q.2. a) Explain the data model in detail.

b) Draw schema diagram for the University data base.

Or

a) List two reasons why null value might be introduced into the data base.

b) What are the advantages of the traditional file processing and data base approach?

Q.3. a) What is relational model and describe its integrity constraints?

b) Explain the differences between a weak entity set and strong entity set.

Or

a) What is foreign key. Explain with an example.

b) Explain the difference between total and partial constraints.

Q.4. a) Define Relational algebra and write operations of relational algebra?

b) Use armstrong's oxioms to prove the soundness of the decomposition rule.

Or

a) What are tuple variables and range variables?

b) What is the use of update and view statement in SQL?

Q.5. a) What is Dependency preservation and Lossless join?

b) Explain the functional dependency with example.

Or

a) How 3NF differ from BCNF in Normalization?

b) Why does need of Normalization arise?

Q.6. a) What is distributed database? Explain its security mechanism.

b) What is online transaction processing? Explain in detail.

Or

a) Explain the concept of conflict serializability.

b) When is it useful to have replication or fragmentation of data?

❖❖❖❖❖❖❖

Roll No. .....

EB–178

B. E. (Third Semester) (CGPA) EXAMINATION, 2011-12

(Computer Science & Engg.)

DATABASE MANAGEMENT SYSTEM

(CS–304)

Time : Three Hours

Maximum Marks : 60

Note : Question No. 1 is compulsory. Attempt all questions.

1. Write answer in only one or two lines each of the following questions :
   - (i) How architecture of the database can be viewed ?
   - (ii) Write about the value of the attribute.
   - (iii) Define tuple and attribute.
   - (iv) Explain high level data model.
   - (v) What is Relational Calculus ?
   - (vi) What is Data Dictionary ?
   - (vii) What is Normalization ?
   - (viii) What is Foreign Key ?
   - (ix) What is meta data ?
   - (x) What are the components of a Distributed Database System ?

P. T. O.

2. (a) Describe the architecture of DBMS in terms of three schema architecture.

   (b) Explain data model in detail.

Or

   (a) What are the functions of DBA and define data independence.

   (b) What are the advantage of the traditional file processing and database approach ?

3. (a) What is relational model and describe its integrity constraints.

   (b) Differentiate relational and hirarchical model.

Or

   (a) Explain ER diagram and describe different type of keys used in database.

   (b) What is forign key ? Explain with an example.

4. (a) Define relational algebra and write operations of relational algebra.

   (b) What are tuple veriables and range variables ?

Or

   (a) What is the use of update and view statement in SQL ?

   (b) Differentiate relational algebra and relational calculus.

5. (a) What is normalization and define normal forms.

   (b) What is Dependency Preservation and Lossless join ?

Or

(a) Explain the following :

(i) Functional dependency

(ii) Trivial dependency

(b) What is III NF ? Give example.

6. (a) What are concurrent operation on Database ?

(b) What is distributed database ? Explain its security mechanism.

Or

(a) Explain the concept of conflict serializability.

(b) What is transaction processing ? Explain recovery.