XAVIER INSTITUTE OF ENGINEERING
DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK 1-Marking Scheme (Chapter 4, 5, 6)

Subject: DBMS Date: 18th September 18
Class/Semester: SE/III

(Chapter 4) (CO3) [5M each]

1. What is the view in SQL, how it is defined? Discuss the problem that may arise when we attempt to update a view. How views are implemented? (Jun-15, 10M) (BTL-4)
   Rubrics: Definition-1, General syntax-1, example-1, use of created view-1, problems in updating a view-1

2. Write a note on views in SQL. (Dec-15, 5M) (BTL-4)
   Rubrics: Definition-1, advantages-1, General syntax -1, example-1, use of created view with query-1

3. What is view? How it is created and stored? (Jun-16, 10M) (BTL-4)
   Rubrics: Definition-1, advantages-1, General syntax -1, example-1, use of created view with query-1

4. Explain aggregate function with example. (Jun-16, 5M) (BTL-3)
   Rubrics: each aggregate function with its syntax and example -1 (total 5)

5. Explain Group by clause. (Jun-16, 2M) (BTL-3)
   Rubrics: use-1, syntax-1, example with where clause-1.5, example with having clause-1.5

6. Describe view and Trigger. (May-17, 5M) (BTL-4)
   Rubrics: Definition and general syntax of view-1.5, Definition and general syntax of trigger-1.5, example of view-1, example of trigger-1

7. Explain Recursive queries and Nested queries. (Dec-17, 5M) (BTL-3)
   Rubrics: Definition-2, syntax-1, example-2

8. Write a short note on: cursors and its types. (Dec-17, 5M)
   Rubrics: Definition and general syntax of view-1.5, Definition and general syntax of trigger-1.5, example of view-1, example of trigger-1

9. Explain DML and DDL commands with syntax. (May-17, 10M) (BTL-2)
   Rubrics: list of all the commands in DDL and DML-1, each DDL command with syntax, purpose and example- 0.5 (total 2.5) , each DML command with syntax , purpose and example- 0.5 (total 1.5)

10. Write a short note on: DCL commands (Dec-17, 5M) (BTL-2)
    Rubrics: list of all the commands in DCL-1, each DCL command with syntax, purpose and example- 1 (total 4)

11. Explain the difference between stored procedure and functions in SQL. (Dec-17, 10M) (BTL-4)
    Rubrics: definition-2, purpose-1, example-2

12. Consider the following education database.
    Course (course_no, title)
    Offering (course_no, off_no, off_date, location)
    Teacher (course_no, off_no, emp_no)
    Enrolment (course_no, off_no, stud_no, grade)
    Employee (emp_no, emp_name, job)
    Student (stud_no, stud_name,ph_no)
    Write SQL queries for the following statements. (BTL-3)
    i. List all the teachers who conduct the course titled "Database Systems". (Dec-15, 2.5M)
    ii. List all the courses offered in 'Thane' on 15/8/15. (Dec-15, 2.5M)
    iii. Find the course/s enrolled by "Monali". (Dec-15, 2.5M)
    iv. List all the employees who work as a teacher. (Dec-15, 2.5M)
    Rubrics: partial correct query-1, complete correct query-2.5

13. Consider the following employee database. (Dec-13, 10M) (BTL-3)
    Employee (empname, street, city, date_of_joining)
    Works (empname, company_name,salary)
    Company (company_name, city)
    Manages (empname, manager_name)
    Write SQL queries for the following statements.
    i. Modify the database so that 'John' now lives in 'Mumbai'. (Dec-13, 2.5M) (Jun-15, 2M) (Jun-16, 2M) (Dec-17, 2.5M)
    ii. Find all employees who joined in the month of October. (Jun-15, 2M) (Jun-16, 2M)
    iii. Give all employees of 'ABC Corporation' a 10% raise. (Dec-13, 2.5M) (Jun-16, 2M)
    iv. List all employees who live in the same cities as their managers. (Dec-13, 2.5M) (Jun-15, 2M)
    v. Find all employees who earn more than average salary of all employees of their company. (Dec-13, 2.5M) (Jun-15, 2M) (Jun-16, 2M)
    vi. Give all employees of XYZ Corporation a 15 percent raise. (Jun-15, 2M)
    vii. List all employees who live in the same cities as their company city. (Jun-16, 2M)
    viii. Find number of employees in each city with date_of_joining as "01-Aug-2017" (Dec-17, 2.5M)
    ix. List name of companies starting with letter "A". (Dec-17, 2.5M)
    x. Display empname, manager_name, street, city only for employees having manager. (Dec-17, 2.5M)
    Rubrics: partial correct query-1, complete correct query-2.5

14. Consider the following relations for a book club:- (Jun-14, 10M) (BTL-3)

Members (Member_Id, Name, Designation, Age)
Books (Book_Id, Booktitle, BookAuthor, Bookpublisher, Bookprice)
Reserves (Member_Id, Book_Id, Date)
Write SQL queries for the following statements:-

i. Find the names of members who are professor older than 50 years.
ii. List the titles of books reserved by professors.
iii. Find ids of members who have reserved books that cost more than rs.500.
iv. Find the authors and titles of books reserved on 20-09-2012.

Rubrics: partial correct query-1, complete correct query-2.5

15. Consider Insurance Database given below and answer the following queries in SQL. (Dec-14, 10M) (BTL-3)
Person (driver_id, name , address)
Car (license, model, year)
Accident (report_no, adate, location)
Owns (driver_id, license)
Participated (driver_id, license, report_no, damage_amount)
    1. Find total number of people who owned cars that are involved in accidents in 2004.
    2. Find the number of accidents in which car belonging to 'John Smith' were involved.
    3. Add new accident to database.
    4. Delete 'Santro' belonging to 'John Smith'.

Rubrics: partial correct query-1, complete correct query-2.5

16. Employees (Empid, Fname, Lname, Email, Phoneno, Hiredate, Jobid, Salary, Mid, Did)
Departments (Did, Dname, Managerid, Locationid)
Locations (Locationid, Streetadd, Postalcode, City)
Write the SQL queries for the following: (may-17, 10M) (BTL-3)

i. List the employees have a manager who works for a department based in the US.
ii. Write a query to display the details of all employees in the finance department.
iii. Give 10% hike to al the Employee working in Did 20.
iv. Write a query to display the information of the employees whose salary is within the range 1000 and 3000.
v. Display the information of the employees whose first name starts with 'R' in descending order of their salary.

Rubrics: partial correct query-1, complete correct query-2.5

17. Explain different integrity constraints. (Dec-13, 10M) (BTL-2)
Rubrics: one constraint with explanation-1 (total 5)

18. What are triggers? Explain with example. (Dec-14, 10M) (BTL-4)
Rubrics: Definition and general syntax of trigger-2, use-1, example with explanation-2

19. Discuss what is meant by each of the following terms (any 2) (Dec-15, 10M)(BTL-4)
    a. Database Authorization

Rubrics: Definition-1, types-1, graph with explanation-2, cascading and restrict concept-1

b. Referential Integrity
Rubrics: Definition-1, General syntax-1, use-1, example with explanation-2

c. Trigger
Rubrics: Definition and general syntax of trigger-2, use-1, example with explanation-2

(Chapter 5) (CO4) [5M each]

1. Define normalization? Explain 1NF, 2NF, 3NF and BCNF. (BTL-2)
Rubrics: Definition and use of normalization-1, each type explanation-1(total 4)

2. Define normalization? Explain 1NF, 2NF, 3NF with example.(Jun-16, 10M) (BTL-2)
Rubrics: Definition and use of normalization-2, each type explanation-1(total 3)

3. Explain need of Normalization along with all the normal forms. (Dec-17, 10M) (BTL-2)
Rubrics: Definition and use of normalization-1, each type explanation-1(total 4)

4. Describe BCNF and 4NF in detail. (Dec-15, 10M) (BTL-2)
Rubrics: Definition and use of normalization-1, BCNF def and example-2, 4NF def and example-2

5. Define functional dependency. (BTL-2)
Rubrics: Definition-1, use-1, example-2, closure of FD-1

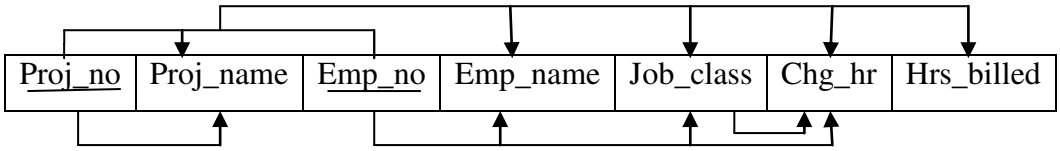
6. Suppose that we decompose the schema
R= {A, B, C, E} into
R1= {A, B, C} and
R2= {A, D, E}

Show that this decomposition is lossless join decomposition if the following set of functional dependencies hold (Dec-14, 5M) (BTL-3)
$A \rightarrow BC$ $CD \rightarrow E$
$B \rightarrow D$ $E \rightarrow A$
Rubrics: def of lossless join decomposition-1, partial correct solution-2, full correct solution-2

7. Consider the following relation
Car_sale (car#, date_sold, salesman#, commission%, discount_amt)
Assume that {car#, salesman#} is the primary key. Additional dependencies are
Date_sold $\rightarrow$ discount_amt
Salesman# $\rightarrow$ commission%

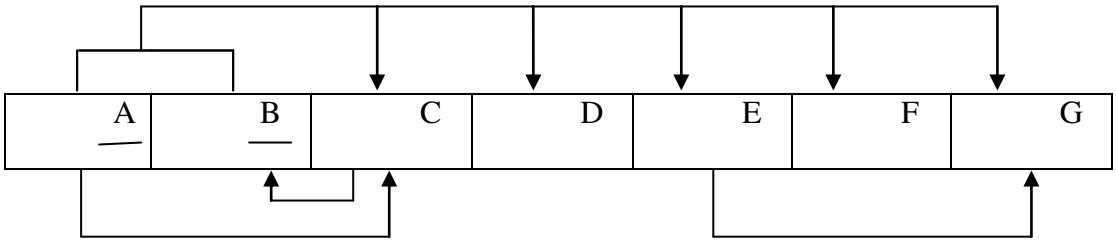
Based on the given primary key, is this relation in 1NF, 2NF or 3NF? Why or why not? How would you successively normalize it completely? (Dec-14, 10M) (BTL-5)
Rubrics: correct reason-1, normalization upto level 1-1, upto level 2-1, upto level 3-1, final answer-1

8. Consider a dependency diagram of relation R and normalize it up to third normal form. (Jun-14, 10M) (BTL-3)



Rubrics: list of all FD-1, normalization upto level 1-1, upto level 2-1, upto level 3-1, final answer-1

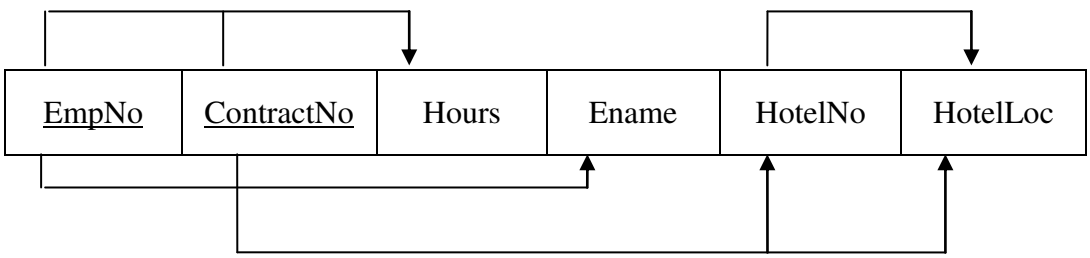
9. Consider a dependency diagram of relation R and normalize it up to third normal form. (Dec-13, 10M) (Jun-15, 10M). or Consider a dependency diagram of relation R and normalize it up to BCNF normal form. (Dec-17, 10M) (BTL-3)



Rubrics: list of all FD-1, normalization upto level 1-1, upto level 2-1, upto level 3-1, upto BCNF and final answer-1

10. Let R1=(company_code, company_name, director #, director_name, {product_name, cost, {cust#,customer_name, address}}) where {} represents a repeating groups. Normalize the above relation to third normal form. (BTL-3)
Rubrics: list of all FD-1, normalization upto level 1-1, upto level 2-1, upto level 3-1, final answer-1

11. Consider the following dependency diagram of relation R and Normalize till 3NF. (May-17, 10M) (BTL-3)



Rubrics: list of all FD-1, normalization upto level 1-1, upto level 2-1, upto level 3-1, final answer-1

12. What is closure set of functional dependency? (BTL-2)
Rubrics: Definition of FD-1, use-1, closure of FD-1, example-2

13. List all functional dependencies satisfied by the relation. (Dec-13, 5M) (Jun-15, 5M) (BTL-3)

A	B	C
a1	b1	c1
a1	b1	c2
a2	b1	c1
a2	b1	c3

Rubrics: Definition of FD-1, 25% correct answer-1, 50% correct answer-2, full correct answer-4

14. List all functional dependencies satisfied by the relation. (Jun-16, 5M) (BTL-3)

X	Y	Z
X1	Y1	Z1
X1	Y2	Z1
X2	Y2	Z1
X2	Y2	Z1

Rubrics: Definition of FD-1, 25% correct answer-1, 50% correct answer-2, full correct answer-4

15. Consider the following relation: (Jun-14,10M) (BTL-3)

A	B	C	Tuple#
10	b1	c1	#1
10	b2	c2	#2
11	b4	c1	#3
12	b3	c4	#4
13	b1	c1	#5
14	b3	c4	#6

Given the previous state which of the following dependencies may hold in the above relation? If the dependency cannot hold explain why by specifying the tuples that cause the violation:

i) A $\rightarrow$ B
ii) B $\rightarrow$ C
iii) C $\rightarrow$ B
iv) B $\rightarrow$ A
v) C $\rightarrow$ A

Rubrics: question correct answer with reason-1

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(Chapter 6) (CO5) [5M each]

1. Explain different indexing types in database management system.(Dec-17, 10M) (BTL-2)
   Rubrics: Definition-1, types-1, all type explanation with example-3

2. Write a short note on: Hashing techniques. (Dec-17, 5M) (BTL-2)
   Rubrics: Definition-1, types-1, example-1, insertion-1, deletion-1

3. Describe various types of records in file. (BTL-2)
   Rubrics: types-1, explanation of types-2, free list -1, slotted page structure-1

4. Explain file organization in detail. (BTL-2)
   Rubrics: types with explanation-1, sequential file organization-2, multitable clustering file organization-2

5. What is system catalog or metadata? Explain. (Dec-15, 5M) (BTL-2)
   Rubrics: def of data-1, definition-1, explanation-1, type of data stored-2

6. Explain concept of hashing and its types. (BTL-2)
   Rubrics: Definition-1, types-1, explanation of two types-3

7. Explain index with example. (BTL-2)
   Rubrics: Definition-1, general syntax for creating n dropping an index-2, example-1, types-1

8. Explain concept of single level ordered index. (BTL-2)
   Rubrics: Def of index-1, def of ordered index-1, types of index-1, explanation-2

9. Explain multilevel index with example. (BTL-2)
   Rubrics: Def of index-1, types of index-1, explanation-3

10. Explain concept of B trees and B + trees. (BTL-2)
    Rubrics: Def-2, concept-2, comparison-1

11. Give and explain one example of B tree. (BTL-2)
    Rubrics: Def-1, concept with example-3, notations-1

12. Give and explain one example of B + tree. (BTL-2)
    Rubrics: Def-1, concept with example-3, notations-1

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