

Solved Exercise from Sumita Arora STRUCTURED QUERY LANGUAGE TYPE A: VERY SHORT ANSWER QUESTIONS

| | TYPE A: VERY SHURT ANSWER QUESTIONS |
|------|---|
| 1. | What is SQL? What are the various subdivisions of SQL? |
| Ans. | SQL means Structured Query Language. It is the set of commands that is recognized by all RDBMS. |
| | Data Definition Language (DDL) |
| | Data Manipulation Language (DML) |
| | Data Control Language (DCL) |
| 2. | Give examples of some DDL commands and some DML commands. |
| Ans. | DDL Commands |
| | 1) CREATE |
| | 2) ALTER |
| | 3) DROP |
| | DML Commands |
| | 1) INSERT INTO |
| | 2) DELETE |
| | , |
| | 3) UPDATE |
| 3. | What is the difference between column constraint and table constraint? Name some database integrity |
| 0.00 | constrains. |
| Ans. | The difference between column constraint and table constraint is that column constraint applies only to |
| | individual columns, whereas table constraints apply to groups of one or more columns. |
| | Following are the few of database integrity constrains: |
| | Unique constraint |
| | Primary Key constraint |
| | > Default constraint |
| | > Check constraint |
| 4. | 1. How do following constraint work? |
| | (i) Unique (ii) Primary Key (iii) Default (iv) Check |
| Ans. | <u>Unique:</u> This constraint ensures that no two rows have the same value in the specified columns. |
| | For eg , CREATE TABLE employee (ecode integer NOT NULL UNIQUE, ename char(20),Sex char(2)); |
| | |
| | Primary Key: Primary key does not allow NULL value and Duplicate data in the column which is declared as |
| | Primary Key. |
| | For eg , CREATE TABLE employee (ecode integer NOT NULL PRIMARY KEY, ename char(20), Sexchar(2)); |
| | |
| | <u>Default:</u> When a user does not enter a value for the column, automatically the defined default value is inserted in |
| | field. A column can have only one default value. |
| | For eg , CREATE TABLE employee (ecode integer NOT NULL PRIMARY KEY, ename char(20), Sexchar(2), Grade |
| | char(2) DEFAULT = 'E1'); |
| | |
| | <u>Check:</u> This constraint limits values that can inserted into a column of table. |
| | For eg , CREATE TABLE employee (ecode integer NOT NULL PRIMARY KEY, ename char(20), Sex char(2) , Grade |
| | char(2) DEFAULT = 'E1', Gross decimal CHECK (gross > 2000); |
| | |
| 5. | Compare DISTINCT and ALL keywords when used with SELECT command. |
| Ans. | DISTINCT keyword is used to restrict the duplicate rows from the results of a SELECT statement. |
| | ALL keyword retains the duplicate rows, by default ALL keyword is use by SELECT statement. |
| 6. | What is wrong with the following statement? Write the corrected form of this query : |
| | SELECT * FROM employee |
| | |
| | WHERE grade = NULL; |

CBSE CS N IP Page 1 of 16



Ans.

| Ans. | IS NULL should be used in place of = NULL. Following is the correct statement : | | | |
|------|---|--|--|--|
| | SELECT * FROM employee | | | |
| | WHERE grade IS NULL; | | | |
| | | | | |

7. What is the difference between where and having clause?

| WHERE CLAUSE | HAVING CLAUSE | |
|---------------------------------------|--|--|
| Places conditions on individual rows. | Places conditions on groups. | |
| Cannot include aggregate function. | Can include aggregate function. | |
| For eg. SELECT * FROM student | For eg. SELECT AVG(marks) FROM student | |
| WHERE Rno >=10; | GROUP BY grade HAVING grade = 'B1'; | |

8. What is difference between working of the following functions? Count(*),Count (<column-name>), Count (DISTINCT), Count (ALL)

Ans. Count(*):- The COUNT(*) function returns the number of records in a table:

SELECT COUNT(*) FROM student;

<u>Count (<column-name>):-</u> The COUNT(<column-name>) function returns the number of values (NULL values will not be counted) of the specified column:

SELECT COUNT(name) FROM student;

<u>Count (DISTINCT):-</u> The COUNT(DISTINCT column_name) function returns the number of distinct values of the specified column:

SELECT COUNT(DISTINCT city) FROM student;

<u>Count (ALL):-</u> to count the number of non-null values in column dept, i.e. counting repetitions too. SELECT COUNT(ALL) FROM student;

9. 1. What is the difference between SELECT INTO and CREATE VIEW commands?

| Э. | 1. What is the difference between SELECT INTO and CREATE VIEW Commands: | | | |
|------|---|--|--|--|
| Ans. | SELECT INTO command | CREATE VIEW command | | |
| | SELECT INTO creates a new table by | The CREATE VIEW creates view from a table. | | |
| | extracting data from other table. | | | |
| | Resides physically in the database. | Not a part of the database's physical representation. | | |
| | Used to create backup copies of tables. | Not used for backup purpose. | | |
| | For eg. SELECT Lastname, FirstName | For eg. CREATE VIEW v_student AS SELECT Roll_no, Name, | | |
| | INTO Person_Backup | Class FROM student; | | |
| | FROM Persons; | | | |

10. What are views? When can a view be updated?

Ans. A view is, in essence, a virtual table. It does not physically exist. Rather, it is created by a query joining one or more tables.

In following condition a view can be updated:

- ✓ If it has only one base table.
- ✓ If select statement used in view contains group by clause then we cant update view.
- 11. What is the condition of dropping a table?

Ans. There is a one condition for dropping a table that is a table must be an empty table which we want to drop.

Note: For the following questions consider the tables EMP given in book.

12. Insert a record with suitable data in the table EMP, tabing system date as the Hiredate.

Ans. | INSERT INTO emp VALUES

(1101, 'ROBIN', 'CLERK', 7902, curdate(), 5000.00, 500.00, 10);

To create a table DEPTO30 to hold the employee numbers, names, jobs and salaries of employee in department with DeptNo = 30.

CBSE CS N IP Page 2 of 16



| 9 | Cosse Cs 11 dp | | | | |
|-------------|--|--|--|--|--|
| Ans. | CREATE TABLE DEPTP30 AS(SELECT EmpNo, EmpName, Job, Sal FROM EMP WHERE DeptNo=30); | | | | |
| 14. | Display names all employees whose names include either of the substring "TH" or "LL". | | | | |
| Ans. | SELECT empname FROM emp WHERE(empname LIKE '%TH%' OR empname LIKE '%LL%'); | | | | |
| 15 . | Display data for all CLERKS who earn between 1000 and 2000. | | | | |
| Ans. | SELECT * FROM emp WHERE((job LIKE 'clerk') AND (sal BETWEEN 1000 AND 2000)); | | | | |
| 16. | Display data for all employees sorted by their department, seniority and salary. | | | | |
| Ans. | SELECT * FROM emp ORDER BY deptno, hiredate, sal; | | | | |
| 17. | Write a SQL statement to list EmpNo, EmpName, DeptNo, for all the employees. This information is should be | | | | |
| | sorted on EmpName. | | | | |
| Ans. | SELECT empno, empname, deptno FROM emp ORDER BY empname; | | | | |
| 18. | Write SQL statement for : Find all the employees who have no manager. | | | | |
| Ans. | SELECT emphame FROM emp WHERE mgr IS NULL; | | | | |
| 19. | Write a SQL statement (s) to list all employees in the following format: | | | | |
| | EMPLOYEE WORKS IN DEPARTMENT DeptNo | | | | |
| | 7369-SMITH WORKS IN DEPARTMENT 20 | | | | |
| | 7300-SUDHIR WORKS IN DEPARTMENT 20 | | | | |
| | 7345-RAJ WORKS IN DEPARTMENT 10 | | | | |
| | 7329-SMITHS WORKS IN DEPARTMENT 30 | | | | |
| | 7234-SANTOSH WORKS IN DEPARTMENT 30 | | | | |
| Ans. | SELECT ename, 'WORKS IN DEPARTMENT', deptno FROM emp; | | | | |
| 20. | To find all those employees whose job does not start with 'M'. | | | | |
| Ans. | SELECT empname FROM emp WHERE job NOT LIKE 'M%'; | | | | |
| 21. | To display all employees who were hired during 1995. | | | | |
| Ans. | SELECT ename FROM emp WHERE YEAR(hiredate) = '1995'; | | | | |
| 22. | To display DeptNo, Job, EmpName in reverse order of salary from the EMP table. | | | | |
| Ans. | SELECT deptno, job, empname FROM emp ORDER BY sal DESC; | | | | |
| 23. | List EmpName, Job, Sal for all the employees who have a manager. | | | | |
| Ans. | SELECT emphame, job, salary from EMP WHERE mgr IS NOT NULL; | | | | |
| 24. | List the minimum and maximum salary of each job type. | | | | |
| Ans. | SELECT job, MIN(sal), MAX(sal) FROM emp GROUP BY job; | | | | |
| 25. | Show the average salary for all departments with more than 3 people for job. | | | | |
| Ans. | SELECT AVG(sal) FROM emp GROUP BY deptno HAVING COUNT(job)>3; | | | | |
| 26. | Display only the jobs with maximum salary greater than or equal to 3000. | | | | |
| Ans. | SELECT job FROM emp GROUP BY job HAVING MAX(salary)>=3000; | | | | |
| 27. | Find out number of employee having 'Manager' as job. | | | | |
| Ans. | SELECT COUNT(empname) FROM emp WHERE job LIKE 'Manager'; | | | | |
| | | | | | |
| 28. Ans. | Create view Dept20 with EmpName and the Sal of employees for dept 20. CREATE VIEW dept20 as SELECT empname, sal FROM emp WHERE deptno=20; | | | | |
| | | | | | |
| 29. | Find the average salary and average total remuneration for each job type remember salesman earn | | | | |
| A | commission. | | | | |
| Ans. | SELECT AVG(sal) , AVG(sal + IFNULL(comm, 0)) FROM emp GROUP BY job; | | | | |
| 30. | What happens if you try to drop a table on which a view exists? | | | | |
| Ans. | If we try to drop a table on which a view exist, then the table is dropped but DBMS invalidates these dependent | | | | |
| | views but does not drop them. We cannot use these views unless we recreate the table or drop and recreate the | | | | |
| | objects so that they no longer depend on the table. | | | | |
| 31. | Create a view with one of the columns Salary * 12. Try updating columns of this view. | | | | |
| Ans. | CREATE VIEW emp_view (v_empno,v_empname,v_avgsal) AS SELECT empno, empname, | | | | |
| | salary*12 FROM emp; | | | | |
| | UPDATE emp_view SET empname = 'MOHAN' WHERE empno=8698; | | | | |
| 32. | Can you create view of view? | | | | |
| Ans. | Yes, We can create view of view. | | | | |

CBSE CS N IP Page 3 of 16



| 33. | Write a suitable SQL statement to display ALL employees working in New York in the following format: | | | |
|------|--|--|--|--|
| | EmpName Salary Location | | | |
| Ans. | SELECT A.empname, A.salary, B.location FROM emp A INNER JOIN dept B on | | | |
| | A.deptno=B.deptno WHERE location LIKE 'NewYork'; | | | |
| 34. | Write a suitable SQL statement to display employees' name of all the employees of GRADE 3. | | | |
| Ans. | SELECT empname FROM emp A, salgrade B WHERE grade=3 AND A.empno=B.empno; | | | |
| 35. | Write a suitable SQL statement to find out the total number of employees from EMP table. | | | |
| Ans. | SELECT count(empname) from EMP; | | | |
| | TYPE D. CHART ANGUED OUTSTIONS | | | |

TYPE B: SHORT ANSWER QUESTIONS

1. Consider the following tables STORE and SUPPLIERS and answer (a) and (b) parts of this question:

Table: STORE

| ItemNo | Item | Scode | Qty | Rate | LastBuy |
|--------|-------------------|-------|-----|------|-----------|
| 2005 | Sharpener Classic | 23 | 60 | 8 | 31-Jun-09 |
| 2003 | Ball Pen 0.25 | 22 | 50 | 25 | 01-Feb-10 |
| 2002 | Gel Pen Premium | 21 | 150 | 12 | 24-Feb-10 |
| 2006 | Gel Pen Classic | 21 | 250 | 20 | 11-Mar-09 |
| 2001 | Eraser Small | 22 | 220 | 6 | 19-Jan-09 |
| 2004 | Eraser Big | 22 | 110 | 8 | 02-Dec-09 |
| 2009 | Ball Pen 0.5 | 21 | 180 | 18 | 03-Nov-09 |

Table: SUPPLIERS

| Scode | Sname |
|-------|--------------------|
| 21 | Premium Stationers |
| 23 | Soft Plastics |
| 22 | Tetra Supply |

- (a) Write SQL commands for the following statements:
- (i) To display details of all the items in the Store table in ascending order of LastBuy.
- Ans. | SELECT * FROM STORE ORDER BY LastBuy;
- (ii) To display ItemNo and Item name of those items from Store table, whose Rate is more than 15 Rupees.
- Ans. | SELECT ItemNo, Item FROM STORE WHERE Rate >15;
- (iii) To display the details of those items whose Supplier code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table Store.
- Ans. | SELECT * FROM STORE WHERE Scode = 22 OR Qty >110;
- (iv) To display Minimum Rate of items for each Supplier individually as per Scode from the table Store.

 SELECT Scode, MIN(Rate) FROM STORE GROUP BY Scode;

CBSE CS N IP Page 4 of 16



(b) Give the output of the following SQL queries:

(i) SELECT COUNT(DISTINCT Scode) FROM Store;

Ans. | COUNT(DISTINCT Scode)

3

(ii) SELECT Rate*Qty FROM Store WHERE ItemNo=2004;

Ans. $\frac{RATE*QTY}{}$

Ans.

880

(iii) SELECT Item, Sname FROM Store S, Suppliers P WHERE S.Scode=P.Scode AND ItemNo=2006;

ITEM SNAME

Gel Pen Classic Premium Stationers

SELECT MAX(LastBuy) FROM Store;

(iv) Ans. $\frac{\text{MAX (LASTBUY)}}{24-\text{Feb}-10}$

2. Consider the following table Item and Customer. Write SQL commands for the statement (i) to (iv) and give outputs for SQL queries (v) to (viii).

Table: ITEM

| i_ID | ItemName | Manufacturer | Price |
|------------------------|-------------------|--------------|-------|
| PC01 | Personal Computer | ABC | 35000 |
| LC05 Laptop | | ABC | 55000 |
| Pc03 | Personal Computer | XYZ | 32000 |
| Pc06 Personal Computer | | COMP | 37000 |
| Lc03 | Laptop | PQR | 57000 |

Table: CUSTOMER

| C_ID | CustomerName | City | I_ID |
|------|--------------|----------|------|
| 01 | N Roy | Delhi | LC03 |
| 06 | H Singh | Mumbai | PC03 |
| 12 | R Pandey | Delhi | PC06 |
| 15 | C Sharma | Delhi | LC03 |
| 16 | K Agarwal | Banglore | PC01 |

(i) To display the details of those Customer whose City is Delhi.

Ans. | SELECT * FROM CUSTOMER WHERE CITY = 'DELHI';

(ii) To display the details of Item whose Price is in the range of 3500 to 55000 (Both values included).

Ans. | SELECT * FROM ITEM WHERE PRICE BETWEEN 35000 AND 55000;

(iii) To displa the customerName, City from table Customer, and ItemName and Price from table Item, with their corresponding matching I_ID.

Ans. | SELECT CUSTOMERNAME, CITY, ITEMNAME, PRICE FROM CUSTOMER A INNER JOIN ITEM B WHERE A.I_ID=B.I_ID;

(iv) To increase the Price of all Items by 1000 in the table Item.

Ans. | UPDATE ITEM SET PRICE=PRICE+1000;

(v) SELECT DISTINCT City FROM Customer;

Ans. City Delhi Mumbai

Banglore

CBSE CS N IP Page 5 of 16



SELECT ItemName, Max(Price), Count(*) FROM Item GROUP BY ItemName;

Name Max(Price) Count(*)

Laptop 58000 2 Personal 38000 3

Computer

Ans.

SELECT CustomerName, Manufacturer From Item, Customer WHERE Item.I_Id=Customer.I_Id; (vii)

Cname Manufacturer Ans.

POR N Rov H Singh XYZ R Pandey COMP C Sharma POR K Agarwal ABC

SELECT ItemName, Price * 100 FROM Item WHERE Manufacturer = 'ABC';

(viii) Price*100 Name Ans. Personal Computer 3600000 5600000 Laptop

Consider the following tables. Write SQL commands for the statements (i) to (iv) and give outputs for SQL 3. queries (v) to (viii).

TABLE: SENDER

| SenderID | SenderName | SenderName | SenderCity |
|----------|------------|-------------------|------------|
| ND01 | R Jain | 2,ABC Appts | New Delhi |
| MU02 | H Sinha | 12, Newtown | Mumbai |
| MU15 | S Jha | 27/A, Park Street | Mumbai |
| ND50 | T Prasad | 122-K, SDA | New Delhi |

TABLE: RECIPIENT

| RecID | SenderID | RecName | RecAddress | ReCity |
|-------|----------|-------------|-----------------------|-----------|
| KO05 | ND01 | R Bajpayee | 5, Central Avenue | Kolkata |
| ND08 | MU02 | S Mohan | 116, A vihar | New Delhi |
| MU19 | ND01 | H singh | 2a, Andheri east | Mumbai |
| MU32 | MU15 | P K Swamy | B5, c S Terminus | Mumbai |
| ND48 | ND50 | S Tirupathi | 13, B1 d, Mayur vihar | New Delhi |

(i) To display the names of all Senders from Mumbai

SELECT SENDERNAME FROM SENDER WHERE SENDERCITY='MUMBAI'; Ans.

(ii) To display the RecID, SenderName, SenderAddress, RecName, RecAddess for every Recipient

SELECT RECID, SENDERNAME, SENDERADDRESS, RECNAME, RECADDRESS FROM RECIPIENT A Ans. INNER JOIN SENDER B ON A.SENDERID=B.SENDERID;

To display Recipient detail in asending order of RecName (iii)

SELECT * FROM RECIPIENT ORDER BY RECNAME; Ans.

To display number of Recipients from each city (iv) SELECT RECCITY, COUNT (RECNAME) FROM RECIPIENT GROUP BY RECCITY;

SELECT DISTINCT Sendercity FROM Sender; (v)

Ans. Sendercity New Delhi

Mumbai

Ans.

CBSE CS N IP Page 6 of 16



(vi) SELECT A.SenderName, B.RecName FROM Sender A, Recipient B WHERE A.SenderID=B.SenderID AND

B.RecCity='Mumbai';

Ans. SenderName RecName R Jain H Singh

S Jha P K Swamy

SELECT RecName, RecAddress FROM Recipient WHERE recCity NOT IN('Mumbai', 'Kolkata');

(vii)RecNameRecAddressAns.S Mahajan116, A Viharl

S Tirupati 13, B1 D, Mayur Vihar

SELECT RecID, RecName FROM Recipient WHERE SenderID='MU02' OR SenderID='ND50';

 RecID
 RecName

 ND08
 S Mahajan

 ND48
 S Tirupati

4. (a) What happens if you drop a table on which a view exists?

Ans. If we try to drop a table on which a view exist, then the DBMS like Oracle invalidates these dependent views but does not drop them. We cannot use these views unless we recreate the table or drop and recreate the objects so that they no longer depend on the table.

Note: Write the SQL commands for (b) to (g) and write outputs for SQL commands given in (h) on the basis of table MOV

Table: MOV

| No. | Title | Туре | Rating | Stars | Qty | Price |
|-----|-----------------------------|--------|--------|---------|-----|-------|
| 1 | Gone with the Wind | Drama | G | Gable | 4 | 39.95 |
| 2 | Friday the 13 th | Horror | R | Jason | 2 | 69.95 |
| 3 | Top Gun | Drama | PG | Cruise | 7 | 49.95 |
| 4 | Splash | Comedy | PG13 | Hanks | 3 | 29.95 |
| 5 | Independence Day | Drama | R | Turner | 3 | 19.95 |
| 6 | Risky Business | Comedy | R | Cruise | 2 | 44.95 |
| 7 | Cocoon | Scifi | PG | Ameche | 2 | 31.95 |
| 8 | Crocodile Dundee | Comedy | PG13 | Harris | 2 | 69.95 |
| 9 | 101 Dalmatians | Comedy | G | | 3 | 59.95 |
| 10 | Tootsie | Comedy | PG | Hoffman | 1 | 29.95 |

(b) Find the total value of the movie cassettes available in the library.

Ans. | SELECT COUNT(TITLE) FROM MOV;

(c) Display a list of all movies with Price over 20 and sorted by Price.

Ans. | SELECT * FROM MOV WHERE PRICE>20 ORDER BY PRICE;

(d) Display all the movies sorted by Qty in decreasing order.

Ans. | SELECT * FROM MOV ORDER BY QTY DESC;

(e) Display a report listing a movie number, current value and replacement value for each movie in the above table. Calculate the replacement value for all movies as

QTY * Price * 1.15

Ans. | SELECT NO, PRICE AS 'CURRENT VALUE', (QTY*PRICE*1.15) AS 'REPLACEMENT VALUE' FROM MOV;

(f) Count the number of movies where Rating is not "G".

Ans. | SELECT COUNT(TITLE) FROM MOV WHERE RATING<>'G';

CBSE CS N IP Page 7 of 16



(g) Insert a new movie in MOV table. Fill all the columns with values.

Ans. | INSERT IN TO MOV VALUES(11, 'Republic Day', 'Drama', 'R', 'Turner', 3, 38.95);

(h) Give the output of following SQL commands on the basis of table MOV.

(i) Select AVG(Price) from MOV where Price < 30;

Ans. AVG(Price)

19.95

(ii) Select MAX(Price) from MOV where price > 30;

Ans. MAX(Price)

79.95

(iii) Select SUM(Price * QTY) from MOV where QTY < 4;

Ans. | SUM(Price*QTY)

791.75

(iv) Select COUNT(DISTINCT TYPE) from MOV;

Ans. | COUNT(DISTINCT TYPE)

4

5. Write SQL statement to create EMPLOYEE relation which contains EmpNo, Name, Skill, PayRate.

Ans. CREATE TABLE EMPLOYEE(EmpNo VARCHAR(10), Name CHAR(20), Skill CHAR(20), PayRate DECIMAL);

6. Create a table with the under mentioned structures

| <u>Table : EMP</u> | | <u>Table</u> : PROJECT | | Table : DEP1 | |
|--------------------|-------------|------------------------|-----------|--------------|-----------|
| EmpNo | NUMBER(4) | Projld | NUMBER(4) | DeptNo | NUMBER(2) |
| DeptNo | NUMBER(2) | ProjDesig | CHAR(20) | DeptName | CHAR(12) |
| EmpName | CHAR(10) | ProjStartDT | DATE | Location | CHAR(12) |
| Job | CHAR(10) | ProjEndDT | DATE | | |
| Manager | NUMBER(4) | BudgetAmount | NUMBER(7) | | |
| Hiredate | DATE | MaxNoStaff | NUMBER(2) | | |
| Salary | NUMBER(7,2) | | | | |
| Commission | NUMBER(7,2) | | | | |

Ans.

CREATE TABLE EMP(EmpNo INTEGER(4), DeptNo INTEGER(2), EmpName CHAR(10), Job CHAR(10), Manager INTEGER(4), HireDate DATE, Salary DECIMAL(7,2), Commission DECIMAL(7,2));

CREATE TABLE **PROJECT**(ProjId INTEGER(4), ProjDesign CHAR(20), ProjStartDT DATE, ProjEndDT DATE, BudgetAmount INTEGER(7), MaxNoStaff INTEGER(2));

CREATE TABLE **DEPT**(DeptNo INTEGER(2), DeptName CHAR(12), Location CHAR(12));

7. Create a table called SALEGRADE with the columns specified beow:

LowSalNUMBER(7,2)HighSalNUMBER(7,2)GradeNUMBER(2)

Ans. CREATE TABLE SALEGRADE(LowSal DECIMAL(7,2) CHECK(LowSal>=1000.00), HighSal DECIMAL(7,2) CHECK(HighSal<=10000.00), Grade INTEGER);

8. Write SQL commands for (a) to (f) and write the outputs for (g) on the basis of tables FURNITURE and ARRIVALS:

TABLE: FURNITURE

| NO | ITEMNAME | TYPE | DATEOFSTOCK | PRICE | DISCOUNT |
|----|--------------|--------------|-------------|-------|----------|
| 1 | White lotus | Double Bed | 23/02/02 | 30000 | 25 |
| 2 | Pink feather | Baby cot | 20/01/02 | 7000 | 20 |
| 3 | Dolphin | Baby cot | 19/02/02 | 9500 | 20 |
| 4 | Decent | Office Table | 01/01/02 | 25000 | 30 |

CBSE CS N IP Page 8 of 16



| 5 | Comfort zone | Double Bed | 12/01/02 | 25000 | 25 |
|----|-----------------|--------------|----------|-------|----|
| 6 | Donald | Baby cot | 24/02/02 | 6500 | 15 |
| 7 | Royal Finish | Office Table | 20/02/02 | 18000 | 30 |
| 8 | Royal tiger | Sofa | 22/02/02 | 31000 | 30 |
| 9 | Econo sitting | Sofa | 13/12/01 | 9500 | 25 |
| 10 | Eating Paradise | Dining Table | 19/02/02 | 11500 | 25 |

TABLE: ARRIVALS

| NO | ITEMNAME | TYPE | DATEOFSTOCK | PRICE | DISCOUNT |
|----|--------------|------------|-------------|-------|----------|
| 11 | Wood Comfort | Double Bed | 23/03/03 | 25000 | 25 |
| 12 | Old Fox | Sofa | 20/02/03 | 17000 | 20 |
| 13 | Micky | Baby cot | 21/02/03 | 7500 | 15 |

- (a) To show all information about the Baby cots from the FURNITURE table.
- Ans. | SELECT * FROM FURNITURE WHERE TYPE='Baby cot';
- (b) To list the ITEMNAME which are priced at more than 15000 from the FURNITURE table.
- Ans. | SELECT ITEMNAME FROM FURNITURE WHERE PRICE>15000;
- (c) To list ITEMNAME and TYPE of those items, in which DATEOFSTOCK is before 22/01/02 from the FURNITURE table in descending order of ITEMNAME.
- Ans. SELECT ITEMNAME, TYPE FROM FURNITURE WHERE DATEOFSTOCK<{22/01/02} ORDER BY ITEMNAME DESC;
- (d) To display ITEMNAME and DATEOFSTOCK of those items, in which the DISCOUNT percentage is more than 25 form FURNITURE table.
- Ans. | SELECT ITEMNAME, DATEOFSTOCK FROM FURNITURE WHERE DISCOUNT>25;
- (e) To count the number of items, whose TYPE is "Sofa" from FURNITURE table.
- Ans. | SELECT COUNT(TYPE) FROM FURNITURE WHERE TYPE='SOFA';
- (f) To insert a new row in the ARRIVALS table with the following data:
- Ans. 14, 'Velvet touch', 'Double bed', {25/03/03}, 25000,30

 INSERT INTO ARRIVALS VALUES(14, 'Velvet touch', 'Double bed', {25/03/03}, 25000,30);
- (g) Give the output of following SQL statement:

NOTE: Outputs of the below mentioned queries should be based on original data given in both the tables, i.e., without considering the insertion done in (f) part of this question:

- (i) Select COUNT (distinct TYPE) from FURNITURE;
- Ans. $\frac{\text{COUNT}(\text{distinct TYPE})}{\epsilon}$

| =

- (ii) Select MAX(DISCOUT) form FURNITURE, ARRIVALS;
- Ans. MAX(DISCOUNT)

30,25

- (iii) Select AVG(DISCOUT) form FURNITURE where TYPE = 'Baby cot';
- Ans. $\frac{\text{AVG}(\text{DISCOUT})}{1.5}$

15

- (iv) Select SUM(PRICE) from FURNITURE where DATEOFSTOCK<{12/02/02};
- Ans. | SUM(PRICE) | 66500
- 9. Differentiate between SQL commands DROP TABLE and DROP VIEW.

CBSE CS N IP Page 9 of 16



Ans. DROP TABLE:- DROP TABLE statement is used to delete the table and all its data from the database entirely. The syntax for DROP TABLE is DROP TABLE;

DROP VIEW:- Removes an existing view from a database. DROP VIEW statement is used to remove a view or an object view from the database. The syntax for DROP VIEW is DROP VIEW;

10. Study the following tables DOCTOR and SALARY and write SQL commands for the questions (i) to (iv) and give outputs for SQL queries (v) to (vi):

TABLE: DOCTOR

| ID | NAME | DEPT | SEX | EXPERIENCE |
|-----|----------|------------|-----|------------|
| 101 | John | ENT | M | 12 |
| 104 | Smith | ORTHOPEDIC | M | 5 |
| 107 | George | CARDIOLOGY | М | 10 |
| 114 | Lara | SKIN | F | 3 |
| 109 | K George | MEDICINE | F | 9 |
| 105 | Johnson | ORTHOPEDIC | M | 10 |
| 117 | Lucy | ENT | F | 3 |
| 111 | Bill | MEDICINE | F | 12 |
| 130 | Morphy | ORTHOPEDIC | M | 15 |

TABLE: SALARY

| 1D | BASIC | ALLOWANCE | CONSULTATION |
|-----|-------|-----------|--------------|
| 101 | 12000 | 1000 | 300 |
| 104 | 23000 | 2300 | 500 |
| 107 | 32000 | 4000 | 500 |
| 114 | 12000 | 5200 | 100 |
| 109 | 42000 | 1700 | 200 |
| 105 | 18900 | 1690 | 300 |
| 130 | 21700 | 2600 | 300 |

Display NAME of all doctors who are in "MEDICINE" having more than 10 year experience from the table DOCTOR.

Ans. | SELECT NAME FROM DOCTOR WHERE DEPT='MEDICINE' AND EXPERIENCE>10;

(ii) Display the average salary of all doctors working in "ENT" department using the tables DOCTOR and SALARY. Salary=BASIC + ALLOWANCE.

SELECT AVG(BASIC+ALLOWANCE) FROM DOCTOR A, SALARY B WHERE DEPT='ENT' AND A.ID=B.ID;

(iii) Display the minimum ALLOWANCE of female doctors.

SELECT MIN(ALLOWANCE) FROM DOCTOR A AND SALARY B WHERE SEX='F' AND A.ID=B.ID;

(iv.) Display the highest consultation fee among all male doctor.

Ans. | SELECT MAX(CONST) FROM DOCTOR A, SALARY B WHERE SEX='M' AND A.ID=B.ID;

(v) SELECT count(*) from DOCTOR where SEX="F".

Ans. $\frac{\text{count}(*)}{4}$

(i)

(vi) SELECT NAME, DEPT, BASIC from DOCTOR Salary WHERE DEPT="ENT" AND DOCTORID=SALARY.ID

Ans. NAME DEPT BASIC

John ENT 12000

CBSE CS N IP Page 10 of 16



11. What are DDL and DML commands?

(a) DDL is short form of Data Definition Language statements are used to build and modify the structure of database, tables and other objects in the database. When you execute a DDL statement, it takes effect immediately. Some of the commands comprising DDL are CREATE TABLE, DROP TABLE and CREATE INDEX.

DML is abbreviation of Data Manipulation Language. It is used to retrieve, store, modify, delete, insert and update data in database. Examples: SELECT, UPDATE, INSERT statements.

(b) Study the following tables FLIGHTS and FARES and write SQL commands for the questions (i) to (iv) and give outputs for SQL queries (v) to (vi).

Table: FLIGHTS

| FL_NO | STARTING | ENDING | NO_FLIGHTS | NO_STOPS |
|-------|-----------|------------|------------|----------|
| IC301 | MUMBAI | DELHI | 8 | 0 |
| IC799 | BANGALORE | DELHI | 2 | 1 |
| MC101 | INDORE | MUMBAI | 3 | 0 |
| IC302 | DELHI | MUMBAI | 8 | 0 |
| AM812 | KANPUR | BANGALORE | 3 | 1 |
| IC899 | MUMBAI | KOCHI | 1 | 4 |
| AM501 | DELHI | TRIVANDRUM | 1 | 5 |
| MU499 | MUMBAI | MADRAS | 3 | 3 |
| IC701 | DELHI | AHMEDABAD | 4 | 0 |

Table: FARES

| TILLS | | | |
|-------|-----------------|-------|------|
| FL_NO | AIRLINES | FARE | TAX% |
| IC701 | Indian Airlines | 6500 | 10 |
| MU499 | Sahara | 9400 | 5 |
| AM501 | Jet Airways | 13450 | 8 |
| IC899 | India Airlines | 8300 | 4 |
| IC302 | Indian Airlines | 4300 | 10 |
| IC799 | Indian Airlines | 10500 | 10 |
| MC101 | Deccan Airlines | 3500 | 4 |

- (i) Display FL_NO and NO_FLIGHTS from "KANPUR" to "BANGLORE" from the table FLIGHTS.
- Ans. | SELECT FL_NO, NO_FLIGHTS FROM FLIGHTS WHERE 'STARTING' LIKE 'KANPUR' AND ENDING LIKE 'BANGALORE';
- (ii) Arrange the contents of the table FLIGHTS in the ascending order of FL_NO.
- Ans. | SELECT * FROM FLIGHTS ORDER BY FL_NO
- (iii) Display the FL_NO and fare to be paid for the flights from DELHI to MUMBAI using the tables FLIGHTS and FARES, where the fare to be paid=FARE + FARE*TAX%/100.
- Ans. SELECT `FLIGHTS`.`FL_NO`,(`FARE`+`FARE`*(`TAX%`/100)) FROM `FLIGHTS`,`FARES` WHERE `STARTING` LIKE 'DELHI' AND `ENDING` LIKE 'MUMBAI' AND `FLIGHTS`.`FL_NO` = `FARES`.`FL_NO`;
- (iv) Display the minimum fare "Indian Airlines" is offering from the table FARES.
- Ans. | SELECT MIN(FARE) FROM FARES;
- (v) SELECT FL_NO, NO_FLIGHTS, AIRLINES from FLIGHTS, FARES WHERE STARTING = "DELHI" AND FLIGHTS.FL_NO=FARES.FL_NO.
- Ans. | ERROR Column 'FL_NO' in field list is ambiguous | Correct Code and Ans.

CBSE CS N IP Page 11 of 16



SELECT FLIGHTS.FL_NO,NO_FLIGHTS,FARES.AIRLINES FROM FLIGHTS,FARES

WHERE FLIGHTS.STARTING LIKE 'DELHI' AND FLIGHTS.FL_NO = FARES.FL_NO;

FL_NO NO_FLIGHTS AIRLINES
IC302 8 Indian Airlines

AM501 1 Jet Airways

IC701 4 Indian Airlines

(vi) SELECT count(distinct ENDING) from FLIGHTS.

Ans. count(distinct ENDING)

7

12. Consider the following tables WORKERS and DESIG. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii).

| _ | | | | | _ | | | |
|----|---|---|---|-----|-----|---------|---|---|
| Ta | h | - | • | ١,٨ | 10 | · r l z | _ | ~ |
| ıa | u | œ | | V | v u | ик | | |

| W_ID | FIRSTNAME | LASTNAME | ADDRESS | CITY |
|------|-----------|----------|-------------------|--------------|
| 102 | Sam | Tones | 33 Elm St. | Paris |
| 105 | Sarah | Ackerman | 440 U. S. 110 | New York |
| 144 | Manila | Sengupta | 24 Friends Street | New Delhi |
| 210 | George | Smith | 83 First Street | Howard |
| 255 | Mary | Jones | 842 Vine Ave. | Losantiville |
| 300 | Robert | Samuel | 9 Fifth Cross | Washington |
| 335 | Henry | Williams | 12 Moore Street | Boston |
| 403 | Ronny | Lee | 121 Harrison St. | New York |
| 451 | Pat | Thompson | 11 Red Road | Paris |

Table: DESIG

| W_ID | SALARY | BENEFITS | DESIGNATION |
|------|--------|----------|-------------|
| 102 | 75000 | 15000 | Manager |
| 105 | 85000 | 25000 | Director |
| 144 | 70000 | 15000 | Manager |
| 210 | 75000 | 12500 | Manager |
| 255 | 50000 | 12000 | Clerk |
| 300 | 45000 | 10000 | Clerk |
| 335 | 40000 | 10000 | Clerk |
| 400 | 32000 | 7500 | Salesman |
| 451 | 28000 | 7500 | Salesman |

- (i) To display W_ID Firstname, Address and City of all employees living in New York from the table WORKERS.
- Ans. | SELECT W_ID, FIRSTNAME, ADDRESS, CITY FROM WORKERS WHERE CITY='NEW YORK';
- (ii) To dislay the content of WORKERS table in ascending order of LASTNAME.
- Ans. | SELECT * FROM WORKERS ORDER BY LASTNAME;
- (iii) To display the Firstname, Lastname, and Total Salary of all clerk from the tables WORKERS and DESIG, where Total Salary is calculated as Salary + Benefits.
- Ans. SELECT FIRSTNAME, LASTNAME, SALARY+BENEFITS AS 'TOTAL SALARY' FROM WORKERS, DESIG WHERE WORKERS.W_ID=DESIG.W_ID;
- (iv) To display the Minimum salary among Managers and Clerks from the table DESIG.

Ans. | SELECT MIN(SALARY) FROM DESIG WHERE DESIGNATION IN('MANAGER','CLERK');

(v) SELECT FIRSTNAME, SALARY FROM WORKERS, DESIG WHERE DESIGNATION = 'Manager' AND WORKERS.W_ID=DESIG.W_ID;

CBSE CS N IP Page 12 of 16



Ans. FIRSTNAME SALARY

Sam 75000 Manila 70000 George 75000

(vi) SELECT COUNT(DISTINCT DESIGNATION) FROM DESIG;

Ans. | COUNT(DISTINCT DESIGNATION)

4

(vii) | SELECT DESIGNATION, SUM(SALARY) FROM DESIG GROUP BY DESIGNATION HAVING COUNT(*)<3;

Ans. DESIGNATION SUM(SALARY)

Director 85000 Salesman 60000

(viii) | SELECT SUM(BENEFITS) FROM DESIG WHERE DESIGNATION='Salesman';

Ans. | SUM(BENEFITS)

15000

13. Consider the following tables GARMENT and FABRIC. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii).

Table: GARMENT

| GCODE | DESCRIPTION | PRICE | FCODE | READYDATE |
|-------|----------------|-------|-------|-----------|
| 10023 | PENCIL SKIRT | 1150 | F03 | 19-DEC-08 |
| 10001 | FORMAL SHIRT | 1250 | F01 | 12-JAN-08 |
| 10012 | INFORMAL SHIRT | 1550 | F02 | 06-JAN-08 |
| 10024 | BABY TOP | 750 | F03 | 07-APR-07 |
| 10090 | TULIP SKIRT | 850 | F02 | 31-MAR-07 |
| 10019 | EVENING GOWN | 850 | F03 | 06-JUN-08 |
| 10009 | INFORMAL PANT | 1500 | F02 | 20-OCT-08 |
| 10007 | FORMAL PANT | 1350 | F01 | 09-MAR-08 |
| 10020 | FROCK | 850 | F04 | 09-SEP-07 |
| 10089 | SLACKS | 750 | F03 | 20-OCT-08 |

Table: FABRIC

Ans.

| FCODE | TYPE |
|-------|----------|
| F04 | POLYSTER |
| F02 | COTTON |
| F03 | SILK |
| F01 | TERELENE |

(i) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE

Ans. | SELECT GCODE, DESCRIPTION FROM GARMENT ORDER BY GCODE DESC;

(ii) To display the details of all the GARMENTS, which have READYDATE in between 08-DEC-07 and 16-JUN-08 (inclusive of both the dates).

SELECT * FROM GARMENTWHERE READYDATE BETWEEN '08-DEC-07'AND '16-JUN-08';

(iii) To display the average PRICE of all the GARMENTs, which are made up of FABRIC with FCODE as F03.

SELECT AVG(PRICE) FROM GARMENTWHERE FCODE = `F03';

(iv) Ans. To display FABRICwise highest and lowest price of GARMENTs from GARMENT table. (Display FCODE of each GARMENT along with highest and lowest price).

SELECT FCODE, MAX(PRICE), MIN(PRICE) FROM GARMENT GROUP BY FCODE;

CBSE CS N IP Page 13 of 16



(v) SELECT SUM(PRICE) FROM GARMENT WHERE FCODE='F01';

Ans. SUM(PRICE)

2600

(vi) SELECT DESCRIPTION, TYPE FROM GARMENT, FABRIC WHERE GARMENT.FCODE =FABRIC.FCODE AND

Ans. GARMENT.PRICE > = 1260;

DESCRIPTION TYPE
INFORMAL SHIRT COTTON
INFORMAL PANT COTTON

FORMAL PANT TERELENE

(vii) SELECT MAX(FCODE) FROM FABRIC;

Ans. $\underline{MAX(FCODE)}$

F04

(viii) | SELECT COUNT (DISTINCT PRICE) FROM GARMENT;

Ans. | COUNT(DISTINCT PRICE)

7

14. Consider the following tables DRESS and MATERIAL. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii).

Table: DRESS

| DCODE | DESCRIPTION | PRICE | MCODE | LAUNCHDATE |
|-------|----------------|-------|-------|------------|
| 10001 | FORMAL SHIRT | 1250 | M001 | 12-JAN-08 |
| 10020 | FROCK | 750 | M004 | 09-SEP-07 |
| 10012 | ONFORMAL SHIRT | 1450 | M002 | 06-JUN-08 |
| 10019 | EVENING GOWN | 850 | M003 | 06-JUN-08 |
| 10090 | TULIP SKIRT | 850 | M002 | 31-MAR-07 |
| 10023 | PENCIL SKIRT | 1250 | M003 | 19-DEC-08 |
| 10089 | SLACKS | 850 | M003 | 20-OCT-08 |
| 10007 | FORMAL PANT | 1450 | M001 | 09-MAR-08 |
| 10009 | INFORMAL PANT | 1400 | M002 | 20-OCT-08 |
| 10024 | BABY TOP | 650 | M003 | 07-APR-07 |

Table: MATERIAL

| MCODE | TYPE |
|-------|-----------|
| M001 | TERELENE |
| M002 | COTTON |
| M004 | POLYESTER |
| M003 | SILK |

(i) To display DCODE and DISCRIPTION of each dress in ascending order of DCODE.

Ans. | SELECT DCODE, DESCRIPTION FROM DRESS ORDER BY DCODE;

(ii) To display the details of all the dresses which have LAUNCHDATE in between 05-DEC-07 AND 20-JUN-08 (inclusive of both the dates).

SELECT * FROM DRESS WHERE LAUNCHDATE BETWEEN '05-DEC-07' AND '20-JUN-08';

(iii) To display the average PRICE of all the dresses which are made up of material with MCODE as M003.

Ans. | SELECT AVG(PRICE) FROM DRESS WHERE MCODE='M003';

(iv) To display materialwie highest and lowest price of dresses from DRESS table. (Display MCODE of each dress along with highest and lowest price)

Ans. SELECT B.MCODE, TYPE, MAX(PRICE) AS "HIGHEST", MIN(PRICE) AS "LOWEST" FROM DRESS A, MATERIAL B WHERE A.MCODE=B.MCODE GROUP BY TYPE;

CBSE CS N IP Page 14 of 16



(v) SELECT SUM(PRICE) FROM DRESS WHERE MCODE = 'M001';

Ans. SUM(PRICE)

2700

(vi) SELECT DESCRIPTION, TYPE FROM DRESS, MATERIAL WHERE DRESS.MCODE=MATERIAL.MCODE AND

DRESS.PRICE >= 1250;

Ans. DESCRIPTION TYPE

FORMAL SHIRT TERELENE
INFORMAL SHIRT COTTON
PENCIL SKIRT SILK
FORMAL PANT TERELENE
INFORMAL PANT COTTON

(vii) SELECT MAX(MCODE) FROM MATERIAL;

Ans. $\frac{\text{MAX (MCODE)}}{\text{M004}}$

(viii) | SELECT COUNT(DISTINCT PRICE) FROM DRESS;

Ans. COUNT(DISTINCT PRICE)

6

15. Consider the following tables Stationery and Consumer. Write SQL commands for the statement (i) to (iv) and give output for SQL queries (v) to (viii).

Table: STATIONERY

| S_ID | StationeryName | Company | Price |
|------|----------------|---------|-------|
| DP01 | Dot Pen | ABC | 10 |
| PLO2 | Pencil | XYZ | 6 |
| ER05 | Eraser | XYZ | 7 |
| PL01 | Pencil | CAM | 5 |
| GP02 | Gel Pen | ABC | 15 |

Table: CONSUMER

| C_ID | ConsumerName | Address | S_ID |
|------|--------------|----------|------|
| 01 | Good Lerner | Delhi | PL01 |
| 06 | Write Well | Mumbai | GP02 |
| 12 | Topper | Delhi | DP01 |
| 15 | Write & Draw | Delhi | PL02 |
| 16 | Motivation | Banglore | PL01 |

(i) To display the details of those Consumers whose Address is Delhi.

Ans. | SELECT * FROM CONSUMER WHERE ADDRESS="DELHI";

(ii) To display the details of Stationery whose Price is in the range of 8 to 15 (Both value included)

Ans. | SELECT * FROM STATIONERY WHERE PRICE BETWEEN 8 AND 15;

(iii) To display the ConsumerName, Address from Tble Consumer, and Company and Price from table Stationery, with their corresponding matching S_ID

SELECT CONSUMERNAME, ADDRESS, COMPANY, PRICE FROM CONSUMER, STATIONERY WHERE CONSUMER.S_ID=STATIONERY.S_ID;

(iv) To increase the Price of all stationery by 2

Ans. UPDATE STATIONERY SET PRICE=PRICE+2;

(v) SELECT DISTINCT Address FROM Consumer;

CBSE CS N IP Page 15 of 16



| - | | | | | |
|--------|----------------|------------------|---------------------------------------|---------|--|
| Ans. | Address | | | | |
| | Delhi | | | | |
| | Mumbai | | | | |
| | Banglore | | | | |
| | | | | | |
| (vi) | SELECT Compa | any, MAX(Price), | Min(Price),Coun | t(*) FR | ROM Stationery GROUP BY Company; |
| Ans. | Company | MAX(Price) | Min(Price) | Cour | nt(*) |
| AIIS. | ABC | 17 | 12 | 2 | |
| | CAM | 7 | 7 | 1 | |
| | XYZ | 9 | 8 | 2 | |
| | SELECT Consu | mer.CnsumerNa | me, stationery.s | tatione | neryName, Stationery.Price FROM Stationery, Consumer |
| (vii) | | mer.S_Id=Statio | · · · · · · · · · · · · · · · · · · · | | |
| Ans. | | - | · – | Jame | Price |
| | Good | Lerner | Pencil | | 7 |
| | Writ | e Well | Gel Pen | | 17 |
| | Topp | er | Dot Pen | | 12 |
| | Writ | e & Drow | Pencil | | 8 |
| | Moti | vation | Pencil | | 7 |
| | | | | | |
| (viii) | SELECT Station | neryName, Price | * 3 FROM Statio | nerv | |
| Ans. | | StationeryNa | | • | |
| | _ | Oot Pen | 36 | | |
| | I | Pencil | 24 | | |
| | E | Eraser | 27 | | |
| | I | Pencil | 21 | | |
| | | Gel Pen | 51 | | |

CBSE CS N IP Page 16 of 16