**SQL Worksheet-1   
(DDL – Database Related commands)**

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| 1. | If a database "Employee" exists, which SQL command helps you to start working in that database? |
|  | USE Employee; |
| 2. | Write SQL command will be used to open an already existing database "LIBRARY". |
|  | USE LIBRARY; |
| 3. | Write SQL command to open an existing database. |
|  | USE |
| 4. | What does SQL stand for? What is SQL? |
|  | Structured Query Language,Structured Query Language is a computer language that we use to interact with a relational database. SQL is a tool for organizing, managing, and retrieving archived data from a computer database. |
| 5. | Write two examples of DBMS software. |
|  | MYSQL and Oracle |
| 6. | Sharmila wants to make the database named ‘COMPANY’ active. Write SQL commands for it. |
|  | USE |
| 7. | What is SQL ? |
|  | Structured Query Language is a computer language that we use to interact with a relational database. SQL is a tool for organizing, managing, and retrieving archived data from a computer database. |
| 8. | What is the relationship between SQL and MYSQL ? |
|  | MySQL is an RDBMS that uses SQL as its query language. SQL, on the other hand, is a standardized language used for working with relational databases in general.  Basically MYSQL is subset of SQL. |
| 9. | Mention any two example of common Database Management System. |
|  | MYSQL and Oracle |
| 10. | Suggest Archana suitable command for the following purpose:   1. To display the list of the database already existing in SQL. 2. To use the database named City. 3. To remove the pre-existing database named Clients. |
|  | i. USE  ii. USE City;  iii. DROP DATABASE Clients |
| 11. | Write the command to display the name of the active database. |
|  | SELECT DATABASE(); -- According to MYSQL DBMS |
| 12. | Write the command to create a new database “School” |
|  | CREATE DATABASE School; |

**SQL Worksheet-2   
(DDL – Table Related commands excluding Alter table)**

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| 1. | Write an SQL query to create the table 'Menu' with the following structure: |
|  | CREATE TABLE Menu (  ItemCode VARCHAR(5) PRIMARY KEY,  ItemName VARCHAR (20),  Category VARCHAR (20),  Price DECIMAL(5,2)  ); |
| 2. | Can a table have multiple primary keys? Can it have multiple foreign keys? |
|  | No, One table can be assign only one primary key because in table there can be a only one column which can be not null as well as unique and foregin key can be multiple because in table there can be multiple columns which can have null values and repetative values (not unique). |
| 3. | In a Student table, out of Roll Number, Name, Address which column can be set as Primary key and why? |
|  | Roll Number can be set as a Primary Key because Roll Number is column which can be used in other tables as a relational data between two tables , Roll Number is data which can be used as a common reference between two tables due to it’s unique nature and it will not be changed in future so it is constant and it can’t be null which makes a RollNo as a perfect attribute for primary key. |
| 4. | Ms. Mirana wants to remove the entire content of a table "BACKUP" alongwith its structure to release the storage space. What SQL statement should she use ? |
|  | DROP TABLE BACKUP; |
| 5. | Write SQL command to create the Table STOCK including its Constraints.  Table STOCK : |
|  | CREATE TABLE STOCK (  Id DECIMAL(4) PRIMARY KEY,  Name VARCHAR(20),  Company VARCHAR(20),  Price DECIMAL(8) NOT NULL  ); |
| 6. | Write one similarity and one difference between CHAR and VARCHAR data types. |
|  | Similarity: Both are used to store a string or alphanumeric datatype  Difference: 1) CHAR-Memory allocation according to size(max limit) given. 2) VARCHAR- Memory allocation happens according to the string or data used, size given by user is max limit for the data which can be used. |
| 7. | Saumya had previously created a table named ‘Product’ in a database using SQL. Later on she forgot the table structure. Suggest her suitable SQL command through which she can check the structure of the already created table. |
|  | DESC Product; |
| 8. | Roli wants to list the names of all the tables in her database named ‘Gadgets’. Which command (s) she should use to get the desired result. |
|  | USE Gadgets;  SHOW TABLES; |
| 9. | Name the SQL commands used to :  (i) Physically delete a table from the database.  (ii) Display the structure of a table. |
|  | (i) DROP TABLE  (ii) DESC |
| 10. | Write one similarity and one difference between UNIQUE and PRIMARY KEY constraints. |
|  | Similarity: Both are used to have non-repetative values in columns of table.  Difference: UNIQUE is used to have non-repetative values or data in columns of table and PRIMARY KEY is also do what UNIQUE do and PRIMARY KEY also don’t allow null values due to it’s NOT NULL functions, so the basic difference between both is that UNIQUE can have NULL values but PRIMARY KEY doesn’t allow NULL values. |
| 11. | An attribute A of datatype varchar(20) has the value “Amit” . The attribute B of datatype char(20) has value ”Karanita” . How many characters are occupied in attribute A ? How many characters are occupied in attribute B? |
|  | Attribute A occupied 4 characters and Attribute B occupied all 20 characters due to CHAR function. |
| 12. | Mrs. Sharma is the classteacher of Class ‘XII A’ She wants to create a table ‘Student’  to store details of her class.  i) Which of the following can be the attributes of Student table?  a) RollNo b) “Amit” c) Name d) 25  ii) Name the Primary key of the table ‘Student’. State reason for choosing it. |
|  | i) a) RollNo c) Name  ii) RollNo is Primary key because it can be used in multiples table as a common reference between tables due to constant nature means it will not change in future and which makes it unique in nature and it can’t be null, this type of data can be assign as a primary key. |
| 13. | Write SQL query to create a table ‘Player’ with the following structure: |
|  | CREATE TABLE Player (  Playerid INTEGER PRIMARY KEY,  Name VARCHAR(50),  Height INTEGER,  Weight INTEGER,  Datebirth DATE,  Teamname VARCHAR(50)  ); |
| 14. | Anita has created the following table with the name ‘Order’.    One of the rows inserted is as follows :    (i) What is the data type of columns OrderId and OrderDate in the table Order ?  (ii) Anita is now trying to insert the following row :    Will she be able to successfully insert it ? Give reason. |
|  | (i) Data type of columns OrderId and OrderDate is VARCHAR(4) and DATE.  (ii) No, She will not be able to insert a row due to NULL value given in OrderDate , It will give error because NOT NULL constraints doesn’t allow the NULL values. |
| 15. | Write SQL query to create a table ‘Event’ with the following structure :   |  |  |  | | --- | --- | --- | | Field | Type | Constraint | | EventId | Varchar(5) | PRIMARY KEY | | EventName | Varchar(30) | NOT NULL | | Location | Varchar(50) |  | | ClientID | Integer |  | | EventDate | Date |  | |
|  | CREATE TABLE Event (  EventId VARCHAR(5) PRIMARY KEY,  EventName VARCHAR(30) NOT NULL,  Location VARCHAR(50),  ClientID Int,  EventDate Date  ); |
| 16. | Observe the given table carefully and answer the following questions:    i. Name the column that might have a Primary Key constraint. Justify your answer.  ii. Name the column that might have a Unique constraint. Justify your answer. |
|  | (i) PanNo column can be primary key because of it can’t be same, it should be different for the different person, it should be unique and it can’t be null, there should be a value for PanNo so this all things makes a PanNo a perfect attribute for primary key.  (ii) PanNo column can have a unique constraint but we don’t need to specify it if we specify primary key constraints, Primary key constraints already contain UNIQUE and NOTNULL constraints. |
| 17. | “ABC” Event Management Company requires data of events that are to be organized. Write SQL query to create a table ‘Event’ with the following structure : |
|  | CREATE TABLE Event (  EventId INT PRIMARY KEY,  Event VARCHAR(50),  DateEvent Date,  NumPerformers INT  ); |
| 18. | suggest her suitable command for the following purpose:   1. To display the list of the database already existing in SQL. 2. To use the database named City. 3. To remove the pre-existing database named Clients. 4. To remove all the records of the table named “Club” at one go along with its structure permanently. |
|  | iv. SHOW DATABASES;  v. USE City;  vi. DROP DATABASE Clients;  vii. DROP TABLE Club; |
| 19. | While creating a table named “Employee”, Mr. Rishi got confused as which data type he should chose for the column “EName” out of char and varchar. Help him in choosing the right data type to store employee name. Give valid justification for the same. |
|  | Using a VARCHAR() for EName column is right because it will consume memory data type by user but in CHAR() it will consume memory according to the size mention by user rather than the data type by user. |

**SQL Worksheet-3   
(DDL – Alter Table commands)**

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| 1. | Sahil created a table in SQL. Later on he found that there should have been another column in the table. Which command should he use to add another column to the table? |
|  | ALTER TABLE Table\_Name  ADD column\_Name DataType; |
| 2. | While creating a table 'Customer' Simrita forgot to set the primary key for the table. Give the statement which she should write now to set the column 'CustiD' as the primary key of the table? |
|  | ALTER TABLE Customer  MODIFY CustiD PRIMARY KEY; |
| 3. | Kuhu has already created a table ‘Hospital’ as shown below:    Now she wants to add a new column ‘Address’ to the above given table. Suggest suitable SQL command for the same. |
|  | ALTER TABLE Hospital  ADD Address VARCHAR(300); |
| 4. | Write SQL command to remove column named ‘Hobbies’ from a table named ‘Student’. |
|  | ALTER TABLE Student  DROP Hobbies; |
| 5. | While creating the table Student last week, Ms. Sharma forgot to include the column Game\_Played. Now write a command to insert the Game\_Played column with VARCHAR data type and 30 size into the Student table? |
|  | ALTER TABLE Student  ADD Game\_Played VARCHAR(30); |
| 6. | Kunal created the following table with the name ‘Friends’ :  Table : Friends   |  |  |  | | --- | --- | --- | | FriendCode | Name | Hobbies | | F101 | Bijoy | Swimming | | F102 | Abhinav | Reading books | | F103 | Jyotsna | Dancing |   Now, Kunal wants to delete the ‘Hobbies’ column. Write the SQL statement |
|  | ALTER TABLE Friends  DROP Hobbies; |
| 7. | Rashi wants to add another column ‘Hobbies’ with datatype and size as VARCHAR(50) in the already existing table ‘Student’. She has written the following statement. However it has errors. Rewrite the correct statement.  MODIFY TABLE Student Hobbies VARCHAR; |
|  | ALTER TABLE Student  ADD Hobbies VARCHAR(50); |
| 8. | Ms. Shalini has just created a table named “Employee” containing columns  Ename, Department, Salary.  After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing SQL command to add a primary key column empid. Also state the importance of Primary key in a table. |
|  | ALTER TABLE Employee  ADD empid INT PRIMARY KEY FIRST; |
| 9. | While creating a table 'Customer' Simrita wrongly added a primary key constraint to the field “CUSTNAME”. Now she wants to remove the primary key constraint from the custname field. Help her in writing the correct command. |
|  | ALTER TABLE Customer  DROP PRIMARY KEY; |
| 10. | Mr. Akshat have added a not null constraint to the “name” field in “employees” table. But now he wants to remove that not null constraint. Write the command to delete the not null constraint from name field. |
|  | ALTER TABLE employees  MODIFY name NULL; |

**SQL Worksheet-4   
(DML – INSERT INTO commands)**

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| 1. | Rama is not able to change a value in a column to NULL. What constraint did she specify when she created the table? |
|  | NOT NULL |
| 2. | Consider the table RESULT given below.  Write command to insert a new row  6, "Mohan", 500, "English", 73, "Second" |
|  | INSERT INTO Result VALUES  (6,”Mohan”,500,”English”,73,”Second”); |
| 3. | Consider the Table SHOPPE given below.    To insert a new row in the table Shoppe  '110', 'Pizza' , 'Papa Jones', 120, "Kolkata", 50.0 |
|  | INSERT INTO SHOPPE VALUES  (110,”Pizaa”,”Papa Jones”,120,”Kolkata”,50.0); |
| 4. | How is NULL value different from 0 (Zero) value? |
|  | NULL represents a absence of value, memory consumption for it is very minimal but 0 has a memory allocation and 0 represents a numerical value which is integer. |
| 5. | Consider the following table named "GYM"    Add a new row for a new item in GYM with the details: "G107", "Vibro exerciser” ,21000, “GTCFitness" |
|  | INSERT INTO GYM VALUES  (“G107”,”Vibro exerciser”,21000,”GTCFitness”); |
| 6. | What is meant by NULL value in SQL? |
|  | NULL represents a absence of value, missing value or the value is not provided, basically it is placeholder for missing value, it is not same as empty, 0, it has very less or minimal memory consumption. |
| 7. | Rewrite the following SQL statement after correcting error(s). Underline the corrections made.  INSERT IN STUDENT(RNO,MARKS) VALUE (5,78.5); |
|  | INSERT INTO STUDENT(RNO,MARKS) VALUE (5,78.5); |
| 8. | Rewrite the following SQL statement after correcting error(s). Underline the corrections made.  INSERT IN EMP(EMPNO, SALES) VALUE (100, 20078.50); |
|  | INSERT INTO EMP(EMPNO, SALES) VALUE (100, 20078.50); |
| 9. | Charvi is inserting “Sharma” in the “LastName” column of the “Emp” table but an error is being displayed. Write the correct SQL statement.  INSERT INTO Emp(‘Sharma’)VALUES(LastName) ; |
|  | INSERT INTO Emp(LastName) VALUES(“Sharma”); |
| 10. | Anita has created the following table with the name ‘Order’.    One of the rows inserted is as follows :    (i) What is the data type of columns OrderId and OrderDate in the table Order ?  (ii) Anita is now trying to insert the following row :    Will she be able to successfully insert it ? Give reason. |
|  | (i) Data type of columns OrderId and OrderDate is VARCHAR(4) and DATE.  (ii) No, She will not be able to insert a row due to NULL value given in OrderDate , It will give error because NOT NULL constraints doesn’t allow the NULL values. |
| 11. | In today’s digitized world with a need to store data electronically, it is very important to store the data in the databases. SQL is used to interact with the Database Management System.  Classify the following commands according to their type :(DDL/DML)  i. INSERT INTO ii. ALTER TABLE |
|  | i. DML ii. DDL |
| 12. | Is NULL and 0(zero) same? Jusify your answer. |
|  | NULL represents a absence of value, memory consumption for it is very minimal but 0 has a memory allocation and 0 represents a numerical value which is integer. |
| 13. | Write the full forms of the following:  i. DDL ii. DML |
|  | i. Data Definition Language ii. Data Manipulation Language |

**SQL Worksheet-5   
(DML – UPDATE and DELETE commands)**

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| 1. | What is the purpose of DROP TABLE command in SOL? How is it different from DELETE command? |
|  | DROP TABLE is used when we want to completely remove the table from database with values along with table structure and on other side DELETE command is used to only remove the values of table. |
| 2. | In a database there are two tables "Product" as shown below :    Write the command To increase the Price of all the Products by 20. |
|  | UPDATE PRODUCT SET PRICE = PRCIE + 20; |
| 3. | Write the UPDATE command to change “Sharma” to “Singh” in the “LastName” column in the Employee table. |
|  | UPDATE Employee SET LastName = “Singh” WHERE LastName = “Sharma”; |
| 4. | What is the use of UPDATE statement in SQL ? How is it different from ALTER statement? |
|  | UPDATE is used to change the values of rows or records whether the ALTER is used to add the column or drop the column or modify the constraint of column or change the column name. |
| 5. | Consider the following table named "GYM"    Write command To change the Brandname to "Fit Trend India" of the item, whose ICODE as "G101 ". |
|  | UPDATE GYM SET BRANDNAME = “Fit Trend Name” WHERE ICODE = “G101”; |
| 6. | Write the UPDATE statement in SQL to increase commission by 100.00 in the ‘‘Commission’’ column in the ‘Emp’ table. |
|  | UPDATE Emp SET Commission = Commission + 100.00; |
| 7. | Write two examples of DML commands of SQL. |
|  | **INSERT, UPDATE, DELETE.** |
| 8. | In a database there are two tables ‘CD’ and ‘TYPE’ as shown below :   |  |  | | --- | --- | |  |  |   Write SQL statement to change the name of Singer ‘‘Sonvi Kumar’’ to ‘‘Sonvi Mehra’’ in all the places wherever it occurs in CD table. |
|  | UPDATE CD SET SINGER = “Sonvi Mehra” WHERE SINGER = “Sonvi Kumar”; |
| 9. | Consider the following table named “GARMENT”.     1. Write command To change the colour of garment with code as 116 to “Orange”. 2. Write command to increase the price of all XL garments by 10% 3. Write command to delete the record with GCode “116” |
|  | 1) UPDATE GARMENT SET COLOUR = “Orange” WHERE GCODE = 116;  2) UPDATE GARMENT SET PRICE = PRICE\*1.10 WHERE SIZE = “XL”;  3) DELETE FROM GARMENT WHERE GCODE = 116; |
| 10. | In a Database, there are two tables given below :    Write SQL command to change the JOBID to 104 of the Employee with ID as E4 in the table ‘EMPLOYEE’. |
|  | UPDATE EMPLOYEE SET JOBID = 104 WHERE EMPLOYEEID = “E4”; |
| 11. | In Marks column of ‘Student’ table, for Rollnumber 2, the Class Teacher entered the marks as 45. However there was a totaling error and the student has got her marks increased by 5. Which SQL command should she use to change the marks in ‘Student’ table. |
|  | UPDATE STUDENT SET MARKS = MARKS + 5 WHERE ROLLNUMBER = 2; |
| 12. | Chhavi has created a table named Orders, she has been asked to increase the value of a column named salesamount by 20. She has written the following query for the same.  Alter table Orders Add salesamount =salesamount+20;  Is it the correct query?Justify. |
|  | No, it is not correct because alter is used to add, drop column or modify the constraint of column or change the column name, in order to change the values of column we have to used update set command. |
| 13. | Consider the following table:  Table: PharmaDB    Write commands in SQL to increase the price of “Amlodipine” by 50. |
|  | UPDATE PharmaDB SET PRICE = PRICE + 50 WHERE DrugName = “Amlodipine”; |

**SQL Worksheet-6   
(DML – SELECT command)**

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| 1. | Pooja, a student of class XI, created a table "Book". Price is a column of this table. To find the details of books whose prices have not been entered she wrote the following query:  Select \* from Book where Price = NULL; |
|  | Select \* from Book where Price IS NULL; |
| 2. | The LastName column of a table "Directory" is given below:   |  |  | | --- | --- | |  | Based on this information, find the output of the following queries:  a) SELECT lastname FROM Directory WHERE lastname like "\_a%";  b)SELECT lastname FROM Directory WHERE lastname not like "%a"; | |
|  | a) Batra  b) Sehgal |
| 3. | Consider the table TEACHER given below. Write commands in SQL for (1) to (3) and output for (4)    i. To display all information about teachers of PGT category.  ii. To list the names of female teachers of Hindi department.  iii. To list names, departments and date of hiring of all the teachers in ascending order of date of joining  iv. SELECT DISTINCT(category) FROM teacher; |
|  | i. SELECT \* FROM TEACHER WHERE Category = “PGT”;  ii. SELECT Name FROM TEACHER WHERE Gender = “F” and Department = “Hindi”;  iii. SELECT Name, Department, Hiredate FROM TEACHER ORDER BY Hiredate;  iv. TGT,PRT,PGT. |
| 4. | The ltem\_No and Cost column of a table "ITEMS" are given below:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  | Based on this information, find the output of the following queries:   1. SELECT COST +100 FROM ITEMS WHERE ITEM\_NO > 103;  |  |  | | --- | --- | | ITEM\_NO | COST | | 104 | 6100 | | 105 | NULL | | |
| 5. | Consider the table Projects given below. Write commands in SOL for i) to iii) and output for iv)    i. To display all information about projects of"Medium" ProjSize  ii. To list the ProjSize of projects whose ProjName ends with LITL.  iii. To list ID, Name, Size, and Cost of all the projects in descending order of StartDate.  iv. SELECT DISTINCT ProjSize FROM projects |
|  | i. SELECT \* FROM PROJECTS WHERE ProjSize = “Medium”;  ii. SELECT ProjSize FROM PROJECTS WHERE ProjName LIKE “%LITL”;  iii. SELECT ID, ProjName, ProjSize, Cost FROM PROJECTS ORDER BY StartDate DESC;  iv. Large, Medium, Small. |
| 6. | The Mname Column of a table Members is given below :   |  |  | | --- | --- | |  | Based on the information, find the output of the following queries :  (i) Select Mname from members where mname like "%v" ;  (ii) Select Mname from members where mname like "%e%";  (i) Vinayak  (ii) Sheetal, Rajeev | |
| 7. | Sarthya, a student of class XI, created a table "RESULT". Grade is one of the column of this table. To find the details of students whose Grades have not been entered, he wrote the following SQL query, which did not give the desired result.  SELECT \* FROM Result WHERE Grade= "Null";  Help Sarthya to run the query by removing the errors from the query and write the correct Query. |
|  | SELECT \* FROM Result WHERE Grade is Null; |
| 8. | Consider the table RESULT given below. Write commands in SQL for (i) to (ii)    (i) To list the names of those students, who have obtained Division as FIRST in the ascending order of NAME.  (ii) To display a report listing NAME, SUBJECT and Annual stipend received assuming that the stipend column has monthly stipend. |
|  | (i) SELECT Name FROM Result WHERE Division = “First” ORDER BY Name;  (ii) SELECT Name, Subject, Stipend \* 12 AS Annual\_Stipend FROM Result; |
| 9. | Mr. Janak is using a table with following columns :  Name , Class , Course\_Id, Course\_name  He needs to display names of students, who have not been assigned any stream or have been assigned Course\_name that ends with "economics". He wrote the following command, which did not give the desired result.  SELECT Name, Class FROM Students WHERE Course name = NULL OR Course name="%economics";  Help Mr. J anak to run the query by removing the error and write the correct query. |
|  | SELECT Name, Class FROM Students WHERE Course\_name IS NULL OR Course\_name="%economics"; |
| 10. | Consider the Table SHOPPE given below. Write command in SQL for (i) to (ii)    (i) To display names of the items whose name starts with 'C' in ascending order of Price.  (ii) To display Code, Item name and City of the products whose quantity is less than 100. |
|  | (i) SELECT Item FROM SHOPEE WHERE ITEM LIKE “C%” ORDER BY Price;  (ii) SELECT Code, Item, City WHERE Qty < 100; |
| 11. | What is used in the SELECT clause to return all the columns in the table? |
|  | \* |
| 12. | In SQL, Sumit and Fauzia are getting the following outputs of ItemCodes for SELECT statements used by them on a table named ITEM.(Both have used the SELECT statements on the same table ITEM).   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Sumit’s Output   |  | | --- | | 101 | | 102 | | 101 | | 105 | | 101 | | 107 | | Fauzia’s Output   |  | | --- | | 101 | | 102 | | 105 | | 107 | |   Which extra keyword has Fauzia used with SELECT statement to get the above output? |
|  | DISTINCT |
| 13. | Consider the table ‘PERSONS’ given below. Write commands in SQL for (i) to (iv) and write output for (v).  6   1. Display the SurNames, FirstNames and Cities of people residing in Udhamwara city. 2. Display the Person Ids (PID), cities and Pincodes of persons in descending order of Pincodes. 3. Display the First Names and cities of all the females getting Basic salaries above 40000. 4. Display First Names and Basic Salaries of all the persons whose firstnames starts with “G”. 5. SELECT Surname FROM Persons Where BasicSalary>=50000; |
|  | (i) SELECT Surname, Firstname, City FROM PERSONS WHERE City = “Udhamwara”;  (ii) SELECT PId, City, Pincode ORDER BY PinCode DESC;  (iii) SELECT Firstname, City FROM PERSONS WHERE Gender = “F” and BasicSalary > 40000;  (iv) SELECT Firstname, BasicSalary FROM PERSONS Firstname LIKE “%G”;  (v) Sharma, Singh, Alvis. |
| 14. | Mr. Tondon is using table EMP with the following columns.  ECODE,DEPT,ENAME,SALARY  He wants to display all information of employees (from EMP table) in ascending order of ENAME and within it in ascending order of DEPT. He wrote the following command, which did not show the desired output.  SELECT \* FROM EMP ORDER BY NAME DESC,DEPT;  Rewrite the above query to get the desired output. |
|  | SELECT \* FROM EMP ORDER BY ENAME,DEPT; |
| 15. | Consider the following table named "GYM" with details about fitness items being sold in the store. Write command of SQL for (i) to (ii).    (i) To display the names of all the items whose name starts with "A".  (ii) To display ICODEs and INAMEs of all items, whose Brandname is Reliable or Coscore. |
|  | (i) SELECT IANME FROM GYM WHERE INAME LIKE “A%”;  (ii) SELECT ICODE, INAME FROM GYM WHERE BRANDNAME = “Reliable” OR BRANDNAME = “Coscore”; |
| 16. | Consider the following table named 'SBOP" with details of account holders. Write commands of SQL for (i) to (ii) and output for (iii).    (i) To display Accountno, Name and DateOfopen of account holders having transactions more than 8.  (ii) To display all information of account holders whose transaction value is not mentioned.  (iii) SELECT NAME,BALANCE FROM SBOP WHERE NAME LIKE “%i”; |
|  | (i) SELECT Accountno, Name, DateOfopen FROM SBOP WHERE Transaction > 8;  (ii) SELECT \* FROM SBOP WHERE Transaction IS NULL;  (iii) Empty or Nothing |
| 17. | When using the LIKE clause, which wildcard symbol represents any sequence of none, one or more characters ? |
|  | % (Percentage symbol) |
| 18. | Consider the table FLIGHT given below. Write commands in SQL for (i) to (iv) and output for (v).    (i) Display details of all flights starting from Delhi.  (ii) Display details of flights that have more than 4 number of flights operating.  (iii) Display flight codes, starting place, destination, number of flights in descending order of number of flights.  (iv) Display destinations along with flight codes of all the destinations starting with ‘A’.  (v) SELECT DISTINCT(NO\_STOPS) FROM FLIGHT; |
|  | (i) SELECT \* FROM FLIGHT WHERE START = “DELHI”;  (ii) SELECT \* FROM FLIGHT WHERE NO\_FLIGHTS > 4;  (iii) SELECT FLCODE, START, DESTINATION, NO\_FLIGHTS ORDER BY NO\_FLIGHTS DESC;  (iv) SELECT FLCODE, DESTINATION FROM FLIGHTS WHERE DESTINATION LIKE “%A”;  (v) 1,2,3 |
| 19. | What will be the output of the following queries on the basis of Employee table:    (i) Select Salary+100 from Employee where EmpId='A002'; |
|  | NULL |
| 20. | Pranay, who is an Indian, created a table named “Friends” to store his friend’s detail.  Table “Friends” is shown below. Write commands in SQL for (i) to (iii) and output for (iv).  i. To display list of all foreigner friends.  ii. To list name, city and country in descending order of age.  iii. To list name and city of those friends who don’t have an email id.  iv. Select name,country from friends where age>12 and name like ‘A%’; |
|  | (i) SELECT \* FROM Friends WHERE COUNTRY IS NOT “INDIA”;  (ii) SELCT Name, City, Country ORDER BY Age DESC;  (iii) SELECT Name, City, Country FROM Friends WHERE Email\_id IS NULL;  (iv) Alice, Angel, Alexander |
| 21. | Consider the following table named “GARMENT”. Write command of SQL for (i)  to (iv) and output for (v) to (vii).  (i) To display names of those garments that are available in ‘XL’ size.  (ii) To display codes and names of those garments that have their names starting with ‘Ladies’.  (iii) To display garment names, codes and prices of those garments that have  price in the range 1000.00 to 1500.00 (both 1000.00 and 1500.00 included).  (iv) SELECT GNAME FROM GARMENT WHERE SIZE IN (‘M’, ‘L’) AND PRICE > 1500; |
|  | (i) SELECT GNAME FROM GARMENT WHERE SIZE = “XL”;  (ii) SELECT GCODE, GNAME FROM GARMENT WHERE GNAME LIKE “Ladies%”;  (iii) SELECT GNAME, GCODE, PRICE FROM GARMENT WHERE PRICE BETWEEN 1000.00 AND 1500.00;  (iv) Jeans |
| 22. | Consider the table ‘empsalary’.  To select tuples with some salary ,Siddharth has written the following erroneous SQL  statement:  SELECT ID, Salary FROM empsalary WHERE Salary = something; |
|  | SELECT ID, Salary FROM empsalary WHERE Salary IS NOT NULL; |
| 23. | Consider the table ‘Employee’.  Write the SQL command to obtain the following output : |
|  | SELECT DISTINCT Location FROM Employee; |
| 24. | Table “Emp” is shown below. Write commands in SQL for (i) to (iii) and output for (iv) and (v)  and (vi)  i. To display list of all employees below 25 years old.  ii. To list names and respective salaries in descending order of salary.  iii. To list names and addresses of those persons who have ‘Delhi’ in their address.  iv. SELECT Name, Salary FROM Emp where salary between 50000 and 70000;  v. SELECT Name, phone from emp where phone like ‘99%’; |
|  | (i) SELECT \* FROM Emp WHERE AGE < 25;  (ii) SELECT NAME, SALARY FROM Emp ORDER BY SALARY DESC;  (iii) SELECT NAME, ADDRESS FROM Emp WHERE ADDRESS LIKE “%Delhi%”;  (iv) Sidharth 62000 and Karan 65000.  (v) Chavi 99113423989 and Raunaq 99101393576. |
| 25. | Mrs. Sen entered the following SQL statement to display all Salespersons of the cities “Chennai” and ‘Mumbai’ from the table ‘Sales’.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | Scode | Name | City | | 101 | Aakriti | Mumbai | | 102 | Aman | Chennai | | 103 | Banit | Delhi | | 104 | Fauzia | Mumbai | | SELECT \* FROM Sales WHERE City=‘Chennai’ AND City=‘Mumbai’; |   Rewrite the correct statement, if wrong or write statement is correct. |
|  | SELECT \* FROM Sales WHERE City=‘Chennai’ OR City=‘Mumbai’; |
| 26. | Write commands in SQL for (i) to (iii) and output for (iv).  Table : Store   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | StoreId | Name | Location | City | NoOfEmployees | DateOpened | SalesAmount | | S101 | Planetfashion | KarolBagh | Delhi | 7 | 2015-10-16 | 300000 | | S102 | Trends | Nehru  Nagar | Mumbai | 11 | 2015-08-09 | 400000 | | S103 | Vogue | Vikas  Vihar | Delhi | 10 | 2015-06-27 | 200000 | | S104 | Superfashion | Defence  Colony | Delhi | 8 | 2015-02-18 | 450000 | | S105 | Rage | Bandra | Mumbai | 5 | 2015-09-22 | 600000 |   (i) To display name, location, city, SalesAmount of stores in descending order of SalesAmount.  (ii) To display names of stores along with SalesAmount of those stores that have ‘fashion’ anywhere in their store names.  (iii) To display Stores names, Location and Date Opened of stores that were opened before 1st March, 2015.  (iv) SELECT distinct city FROM store; |
|  | (i) SELECT Name, Location, City, SalesAmount FROM Store ORDER BY SalesAmount DESC;  (ii) SELECT Name, SalesAmount FROM Store WHERE NAME LIKE “%fashion%”;  (iii) SELECT Name, Location, DateOpened FROM Store DateOpened < “2015-03-01”;  (iv) Delhi and Mumbai. |
| 27. | Which clause would you use with Select to achieve the following:  i.To select the values that match with any value in a list of specified values.  ii.Used to display unrepeated values of a column from a table. |
|  | i.IN  ii. DISTINCT |
| 28. | Consider the following table:  Table: PharmaDB  Write commands in SQL for (i) to (iii) and output for (iv):  i. To increase the price of “Amlodipine” by 50.  ii. To display all those medicines whose price is in the range 100 to 150.  iii. To display the Drug ID, DrugName and Pharmacy Name of all the records in descending order of their price.  iv. SELECT RxID, DrugName, Price from PharmaDB where PharmacyName IN (“Rx Parmacy”, “Raj Medicos”); |
|  | i. UPDATE PharmaDB SET Price = Price + 50 WHERE DrugName = “Amlodipine”;  ii. SELECT DrugName FROM PharmaDB WHERE Price BETWEEN 100 AND 150;  iii.SELECT DrugID, DrugName, PharmacyName FROM PharmaDB ORDER BY Price DESC;  iv. R1000, Amlodipine, 100 and R1001, Paracetamol, 15. |
| 29. | Write SQL statement that gives the same output as the following SQL statement but uses ‘IN’ keyword.  SELECT NAME FROM STUDENT WHERE STATE = ‘VA’ ; |
|  | SELECT NAME FROM STUDENT WHERE STATE IN (‘VA’) ; |
| 30. | Which one of the following SQL queries will display all Employee records containing the word “Amit”, regardless of case (whether it was stored as AMIT, Amit, or amit etc.) ?  (i) SELECT \* from Employees WHERE EmpName like UPPER ‘%AMIT%’;  (ii) SELECT \*from Employees WHERE EmpName like ‘%AMIT%’ or ‘%AMIT%’ OR ‘%amit%’;  (iii) SELECT \* from Employees WHERE UPPER (EmpName) like ‘%AMIT%’; |
|  | (iii) SELECT \* from Employees WHERE UPPER (EmpName) like ‘%AMIT%’; |
| 31. | Write Answer to (i). Write SQL queries for (ii) to (vii).  **Note :** Columns SID and DOB contain Sales Person Id and Data of Birth respectively.  (i) Write the data types of SID and DOB columns.  (ii) Display names of Salespersons and their Salaries who have salaries in the range 30000.00 to 40000.00  (iii) To list Names, Phone numbers and DOB (Date of Birth) of Salespersons who were born before 1st November, 1992.  (iv) To display Names and Salaries of Salespersons in descending order of salary.  (v) To display areas in which Salespersons are working. Duplicate Areas should not be displayed.  (vi) To display SID, Names along with Salaries increased by 500. (Increase of 500 is only to be displayed and not to be updated in the table)  (vii) To display Names of Salespersons who have the word ‘Kumar’ anywhere in their names. |
|  | (i) VARCHAR(4) and DATE  (ii) SELECT Name, Salary FROM SalesPerson WHERE Salary BETWEEN 30000.00 AND 40000.00;  (iii) SELECT Name, Phone, DOB FROM SalesPerson WHERE DOB < “1992-11-01”;  (iv) SELECT Name, Salary FROM SalesPerson ORDER BY Salary DESC;  (v) SELECT DISTINCT Area FROM SalesPerson;  (vi) SELECT SID, Names, Salary+500 FROM SalesPerson;  (vii) SELECT Name FROM SalesPerson WHERE Name LIKE “%Kumar%”; |
| 32. | Write the following statement using ‘OR’ logical operator :  SELECT first\_name, last\_name, subject FROM studentdetails WHERE subject IN (‘Maths’, ‘Science’); |
|  | SELECT first\_name, last\_name, subject FROM studentdetails WHERE subject = ‘Maths’ OR subject = ‘Science’; |
| 33. | Consider the Table “Gym” shown below. Write commands in SQL for (i) to (vi) :    (i) To display Mname, Age, FeeGiven of those members whose fee is above 12,000.  (ii) To display Mcode, Mname, Age of all female members of the Gym with age in descending order.  (iii) To list names of members and their date of admission of those members who joined after 31st December, 2015.  iv) To display the Mname, FeeGiven of all those members of the Gym whose age is less than 40 and are monthly type members of the Gym.  (v) To display names of members who have ‘mit’ anywhere in their names. For example : Amit, Samit.  (vi) To display types of memberships available. Duplicate values should not be displayed. |
|  | (i) SELECT Mname, Age, FeeGiven FROM Gym WHERE FeeGiven > 12000;  (ii) SELECT Mcode, Mname, Age FROM Gym WHERE Gender = “Female” ORDER BY Age DESC;  (iii) SELECT Mname, DtAdmit FROM Gym DtAdmit > 2015-12-31;  (iv) SELECT Mname, FeeGiven FROM Gym WHERE Age < 40 AND Type = “Monthly”;  (v) SELECT Mname FROM Gym WHERE Mname LIKE “%mit%”;  (vi) SELECT DISTINCT Type FROM Gym; |
| 34. | Consider the following table:  Write commands in SQL for (i) to (iv) and output for (v):  i. To display the details of all those students who have IP as their optional subject.  ii. To display name, stream and optional of all those students whose name starts with ‘A’.  iii. To give an increase of 3 in the average of all those students of humanities section who have Maths as their optional subject.  iv. To display a name list of all those students who have average more than 75.  v. Select name from students where optional IN (‘CS’,’IP’); |
|  | (i) SELECT \* FROM Student WHERE Optional = “IP”;  (ii) SELECT Name, Stream, Optional FROM Student WHERE Name LIKE “A%”;  (iii) UPDATE Student SET Average = Average + 3 WHERE Stream = “Humanities” AND Optional = “Maths”;  (iv) SELECT Name FROM Student WHERE Average > 75;  (v) Shristi, Aditya, Ritu Raj, Saumya, Ashutosh, Aman. |

**SQL Worksheet-7   
(Single Row Functions)**

|  |  |
| --- | --- |
| 1. | Write the output of the following SQL queries:  a) SELECT ROUND(6.5675, 2);  b) SELECT TRUNCATE(5.3456, 1);  c) SELECT DAYOFMONTH('2009-08-25');  d) SELECT MID('Class 12', 2,3);  a) 6.57  b) 5.3  c) 25  d) las |
| 2. | Write the output of the following SQL queries :   1. SELECT INSTR(‘UNICODE’,’CO’); 2. SELECT RIGHT(‘Informatics’,3); |
|  | (i) 4  (ii) ics |
| 3. | State difference between date functions NOW( ) and SYSDATE( ) of SQL. |
|  | NOW() returns the time at the start of the statement , when the statement began to execute, it is used to record the start of the time and SYSDATE returns the time when the function executes, it is used to record the current time at any point during the execution of query. |
| 4. | Name a function of SQL which is used to remove trailing and leading spaces from a string. |
|  | LTRIM and RTRIM. |
| 5. | Consider the following table named 'SBOP" with details of account holders. Write output    (i) SELECT ROUND(Balance,-3) FROM SBOP WHERE AccountNo=”SB-5”;  63000 |
| 6. | Write the output of the following SQL queries :  (i) SELECT RIGHT(‘software’, 2); = re  (ii) SELECT INSTR(‘twelve’,‘lv’); = 4  (iii) SELECT DAYOFMONTH(‘2014-03-01’); = 01  (iv) SELECT ROUND(76.987, 2); = 76.99 |
| 7. | Write the output of the following SQL queries:  i. SELECT INSTR(‘INTERNATIONAL’, ‘NA’); = 6  ii. SELECT LENGTH(CONCAT(‘NETWORK’,’ING’)); = 10  iii.SELECT ROUND(563.345,-2); = 500  iv. SELECT DAYOFYEAR(‘2014-01-30’); = 30 |
| 8. | Pranay, who is an Indian, created a table named “Friends” to store his friend’s detail.  Table “Friends” is shown below. Write output for (i) and (ii).  **i.** Select ucase(concat(name,”\*”,city)) from friends where country like ‘Denmark’;  **ii.** Select mid(name,1,4) as “UID” from friends where country like ‘USA’; |
|  | i. CHARLES \* COPENHAEGN, JETTE NYKOBING  ii. Alic, Ange |
| 9. | Write the output of the following SQL queries:  i) SELECT TRUNCATE(8.975,2); = 8.97  ii) SELECT MID(‘HONESTY WINS’,3,4); = NEST  iii) SELECT RIGHT(CONCAT(‘PRACTICES’,’INFORMATICS’),5); = ATICS  iv) SELECT DAYOFMONTH(‘2015-01-16’); = 16 |
| 10. | Write the output of the following SQL queries :  (i) SELECT MID(‘BoardExamination’,2,4); = oard  (ii) SELECT ROUND(67.246,2); = 67.25  (iii) SELECT INSTR(‘INFORMATION FORM’,‘FOR’); = 3  (iv) SELECT DAYOFYEAR(‘2015-01-10’); = 10 |
| 11. | Write output.  Table : Store   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | StoreId | Name | Location | City | NoOfEmployees | DateOpened | SalesAmount | | S101 | Planetfashion | KarolBagh | Delhi | 7 | 2015-10-16 | 300000 | | S102 | Trends | Nehru  Nagar | Mumbai | 11 | 2015-08-09 | 400000 | | S103 | Vogue | Vikas  Vihar | Delhi | 10 | 2015-06-27 | 200000 | | S104 | Superfashion | Defence  Colony | Delhi | 8 | 2015-02-18 | 450000 | | S105 | Rage | Bandra | Mumbai | 5 | 2015-09-22 | 600000 |   (i) SELECT Name, length (name), left (name, 3) FROM Store where NoOfEmployees<7; |
|  | = Rage , 4, Rag |
| 12. | Write the output of the following SQL queries:  SELECT POW(INSTR(‘My\_Database’,’\_’),2); = 9 |
| 13. | Consider the table given below :  Write output.    (i) SELECT Name, LENGTH(Name) FROM Salesperson;  = Amit Kumar, 10  Deepika Sharma, 14  Vinay Srivastav, 15  **Kumar Mehta, 11**  **Rashmi Kumar, 12** |
| 14. | Identify Single Row functions of SQL amongst the following :  TRIM(), MAX(), COUNT(\*), ROUND() |
|  | TRIM() and ROUND() are the Row functions and COUNT(), MAX() are the aggregate functions. |
| 15. | Consider the Table “Gym” and write output    (i) SELECT MID(Mname,1,2)from Gym;  Am  Ra  Ge  Fa  Sa  La  Sa  Mi  Da  Aj |
| 16. | Observe the given table named “Loan” carefully and predict the output of the  following queries:   1. SELECT concat(left(file\_no,2), right(cust\_name,2)) AS “ID” from loan where Bank='ICUCI Ltd.'; 2. select round(loan\_amt-loan\_amt\*10/100) As "Discounted Payment" from loan where loan\_amt>700000; |
|  | i. 23sh, 43et ii. 80987, 74573 |

**SQL Worksheet-8   
(Aggregate Functions)**

|  |  |
| --- | --- |
| 1. | Consider the table TEACHER given below. Write commands in SQL for (1) and output for (2) to (5)    i. To count the number of teachers in English department.  ii. SELECT MAX(Hiredate) FROM Teacher;  iii. SELECT DISTINCT(category) FROM teacher;  iv. SELECT COUNT(\*) FROM TEACHER WHERE Category = "PGT"  v. SELECT Gender,AVG(Salary) FROM TEACHER group by Gender; |
|  | i. SELECT COUNT(Name) FROM TEACHER WHERE Department = “English”;  ii. 1994-09-02  iii. TGT, PRT, PGT  iv. 1  v. M, 24000 and F, 24500 |
| 2. | The ltem\_No and Cost column of a table "ITEMS" are given below:   |  |  | | --- | --- | |  | Based on this information, find the output of the following queries:  a) SELECT AVG(COST) FROM ITEMS;  b) SELECT COST +100 FROM ITEMS WHERE ITEM\_NO > 103; | |
|  | a) 5000  b) 6100, NULL |
| 3. | "PrincipalName" is a column in a table "Schools". The SOL queries  SELECT count(\*) FROM Schools;  and  SELECT count( PrincipalName) FROM schools;  Give the result 28 and 27 respectively. What may be the possible reason for this? How many records are present in the table-27 or 28? |
|  | **Because count(\*) counts the all the rows irrespective of the situation where the null values are present or not on the other hand count(principalname) counts the rows of column including only non-null values, the reason behind getting different outputs is the presence of one null value in principalname column that’s why when count(principalname) counts the number of rows it gives 27 in the output which is one less compare to the count of count(\*), it includes null values also that why it gives 28 as count in output.** |
| 4. | Consider the table Projects given below. Write commands in SOL fori) and output for i) to iii)    i. To count the number of projects of cost less than 100000.  ii. SELECT SUM(Cost) FROM projects;  iii. SELECT ProjSize, COUNT(\*) FROM Projects GROUP BY ProjSize; |
|  | i. SELECT COUNT(ProjName) FROM PROJECTS WHERE Cost < 100000;  ii. 163333.33  iii. Medium, Large, Small and 3. |
| 5. | Consider the table RESULT given below. Write output    (i) SELECT AVG(Stipend) FROM EXAM WHERE DIVISION= "THIRD”;  (ii) SELECT COUNT(DISTINCT Subject) FROM EXAM;  (iii) SELECT MIN(Average) FROM EXAM WHERE Subject= "English"; |
|  | i. 475  ii. 6  iii. 38 |
| 6. | What is the purpose of ORDER BY clause in SQL ? How is it different from GROUP BY clause? |
|  | ORDER BY is used to to arrange the values in ascending or descending order on the other hand GROUP BY CLAUSE is used to grouped the values it will give distinct values and then we have to use aggregate function which is compulsory when you are using group by. |
| 7. | Consider the Table SHOPPE given below. Write command in SQL for (i) and output for (ii) to (iii).  (i) To count distinct Company from the table.  (ii) Select Count(distinct (City)) from Shoppe;  (iii) Select MIN (Qty) from Shoppe where City="Mumbai"; |
|  | **i. SELECT COUNT(DISTINCT Company) FROM SHOPEE;**  **ii. Delhi, Kolkata, Mumbai**  **iii. 56** |
| 8. | 6Consider the table ‘PERSONS’ given below. Write commands in SQL for (i) to (iv) and write output for (i) to (iii).   1. SELECT SUM(BasicSalary) FROM Persons Where Gender=’F’; 2. SELECT Gender,MIN(BasicSalary) FROM Persons GROUP BY gender; 3. SELECT Gender,Count(\*) FROM Persons GROUP BY Gender; |
|  | (i) 132000  (ii) M, 203000 and F, 132000  (iii) M, 4 and F, 3 |
| 9. | There is a column HOBBY in a Table CONTACTS. The following two statements are giving different outputs. What may be the possible reason ?  SELECT COUNT(\*) FROM CONTACTS;  SELECT COUNT(HOBBY)FROM CONTACTS; |
|  | **Because count(\*) counts the all the rows irrespective of the situation where the null values are present or not on the other hand count(hobby) counts the rows of column including only non-null values, the reason behind getting different outputs is the presence of null values in hobby column that’s why when count(hobby) counts the number of rows it doesn’t count null values on the other hand count(\*) counts all the rows including null values also and that’s why both the query will give different output.** |
| 10. | Consider the following table named "GYM" with details about fitness items being sold in the store. Write output  (i) SELECT COUNT (DISTINCT (BRANDNAME)) FROM GYM;  (ii) SELECT MAX (PRICE) FROM GYM;   1. 6 2. 20000 |
| 11. | Consider the following table named 'SBOP" with details of account holders. Write output.    (i) SELECT COUNT(\*) FROM SBOP;   1. 5 |
| 12. | Given ‘Employee’ table as follows :    What values will the following statements return ?  SELECT COUNT(\*) FROM Employee; = 3  SELECT COUNT(Commission) FROM Employee; = 1 |
| 13. | Consider the table FLIGHT given below. Write output.    (i) SELECT MAX(NO\_FLIGHTS) FROM FLIGHT;  (ii) SELECT START, COUNT(\*) FROM FLIGHT GROUP BY Start; |
|  | (i) 7  (ii) Delhi, 3, Mumbai, 2, Kanpur, 1, Indore, 1. |
| 14. | What will be the output of the following queries on the basis of Employee table:    (i)Select avg(Salary) from Employee;  (ii) Select Salary+100 from Employee where EmpId='A002'; |
|  | (i) 5300  (ii) NULL |
| 15. | Consider the following table named “GARMENT”. Write output    (i) SELECT COUNT(DISTINCT (SIZE)) FROM GARMENT;  (ii) SELECT AVG (PRICE) FROM GARMENT;  (i) 3  (ii) 1800 |
| 16. | Consider the table ‘Teacher’ given below.  What will be the output of the following queries on the basis of the above table:  (i)Select count(Department) from Teacher; = 2  (ii)Select count(\*) from Teacher; = 3 |
| 17. | (i) Name two Aggregate (Group) functions of SQL. SUM(), MIN(), MAX(), AVG(), COUNT().  (ii) Consider the table :   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Table : Company   |  |  | | --- | --- | | SID | SALES | | S101 | 20000 | | S103 | NULL | | S104 | 10000 | | S105 | 15000 | | What output will be displayed by the following SQL statement ?  SELECT AVG(SALES) FROM Company;  15000 | |
| 18. | Consider the table ‘Hotel’ given below :   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Table : Hotel   |  |  |  | | --- | --- | --- | | EMPID | Category | Salary | | E101 | MANAGER | 60000 | | E102 | EXECUTIVE | 65000 | | E103 | CLERK | 40000 | | E104 | MANAGER | 62000 | | E105 | EXECUTIVE | 50000 | | E106 | CLERK | 35000 | | Mr. Vinay wanted to display average salary of each Category. He entered the following SQL statement. Identify error(s) and Rewrite the correct SQL statement.  SELECT Category, Salary FROM Hotel  GROUP BY Category;  SELECT Category, AVG(Salary) FROM Hotel  GROUP BY Category; | |
| 19. | Explain why the following queries give different outputs on execution:  i. SELECT COUNT(ENAME) FROM EMP;  **Output: 5**  ii. SELECT Count(\*) FROM EMP;  **Output: 8** |
|  | **Because count(\*) counts the all the rows irrespective of the situation where the null values are present or not on the other hand count(ename) counts the rows of column including only non-null values, the reason behind getting different outputs is the presence of null values in ename column that’s why when count(ename) counts the number of rows it doesn’t count null values on the other hand count(\*) counts all the rows including null values also and that’s why both the query will give different output.** |
| 20. | Kunal has entered the following SQL command on Table ‘STUDENT’ that has TotalMarks as one of the columns.  SELECT COUNT (\*) FROM STUDENT;  The output displayed is 20.  Then, Kunal enters the following command :  SELECT COUNT (\*) FROM STUDENT WHERE TotalMarks <100;  The output displayed is 15.  Then, Kunal enters the following command :  SELECT COUNT (\*) FROM STUDENT WHERE TotalMarks >= 100;  He predicts the output of the above query as 5. Do you agree with Kunal ? Give reason for your answer. |
|  | No, I do not agree with Kunal's prediction that the output of the query SELECT COUNT(\*) FROM STUDENT WHERE TotalMarks >= 100 will be 5.  The reason for this is that the WHERE clause filters the results of the SELECT statement to only include rows where the TotalMarks column is greater than or equal to 100. This means that the COUNT(\*) function will only count the number of rows in the table where the TotalMarks column is greater than or equal to 100.  Since Kunal has already determined that there are 15 rows in the table where the TotalMarks column is less than 100, this means that there must be at least 20 - 15 = 5 rows in the table where the TotalMarks column is greater than or equal to 100.  Therefore, the output of the query SELECT COUNT(\*) FROM STUDENT WHERE TotalMarks >= 100 must be at least 5. It could be higher than 5 if there are any rows in the table where the TotalMarks column is greater than 100.  In conclusion, I do not agree with Kunal's prediction that the output of the query SELECT COUNT(\*) FROM STUDENT WHERE TotalMarks >= 100 will be 5. The output of the query must be at least 5. |
| 21. | Consider the table given below :  Write command for (i) and output for (ii)  (i) To display Area along with number of Salespersons working in that area.  (ii) SELECT Area, COUNT (\*) FROM Salesperson GROUP BY Area HAVING COUNT (\*) > 1;  (i) SELECT Area, COUNT(\*) FROM Salesperson GROUP BY Area;  (ii) North, 2 and South, 2 |
|  |  |
| 22. | Observe the given table named “Loan” carefully and predict the output of the  following queries:  select count(file\_no)-count(loan\_amt) from loan;  1 |

**SQL Worksheet-9   
(Joins)**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | In a database there are two tables 'Customer' and 'Bill' as shown below:   |  |  | | --- | --- | |  |  |   (i) How many rows and how many columns will be there in the Cartesian product of these two tables?  (ii) Which column in the 'Bill' table is the foreign key? |
|  | (i) 6 columns and 15 rows.  (ii) CustID column. |
| 2. | Consider the tables HANDSETS and CUSTOMER given below:   |  |  | | --- | --- | |  |  |   With reference to these tables, Write commands in SQL for (i) and (ii) and output for (iii) below:  (i) Display the CustNo, CustAddress and corresponding SetName for each customer.  (ii) Display the Customer Details for each customer who uses a Nokia handset.  (iii) select SetNo, SetName from Handsets, customer where SetNo = SetCode and CustAddress = 'Delhi'; |
|  | (i) SELECT B.CustNo, B.CustAddress, A.SetName  FROM Handsets AS A INNER JOIN Customer AS B  ON A.SetCode = B.SetNo;  (ii) SELECT \* FROM Customer AS A INNER JOIN Handsets AS B  ON A.SetCode = B.SetNo  WHERE B.SetName LIKE “%Nokia%”;  (iii) B1, BlackBerry. |
| 3. | In a database there are two tables "Company" and "Model" as shown below:   |  |  | | --- | --- | |  |  |   (i) Identify the foreign key column in the table Model.  (ii) Check every value in CompiD column of both the tables. Do you find any discrepancy? |
|  | (ii) CompID column is foreign key.  (iii) Yes, I find discrepancy in CompID column which is absence of 4 in CompID column of table Company. |
| 4. | Consider the tables DOCTORS and PATIENTS given below:   |  |  | | --- | --- | |  |  |   W1th reference to these tables, write commands m SQL for (1) and (II) and output for (iii) below:  (i) Display the PatNo, PatName and corresponding DocName for each patient  (ii) Display the list of all patients whose OPD\_Days are MWF.  (iii) select OPD\_Days, Count(\*) from Doctors, Patients where Patients.Department = Doctors.Department Group by OPD\_Days; |
|  | (i) SELECT B.PatNo, B.PatName, A.DocName  FROM DOCTORS AS A INNER JOIN PATIENTS AS B  ON A.DocID = B.DocID;  (ii) SELECT B.PatName  FROM DOCTORS AS A INNER JOIN PATIENTS AS B  ON A.DocID = B.DocID  WHERE OPD\_Days = “MWF”;  (iii) TTS, 2 and MWF, 3. |
| 5. | In a database there are two tables "Product" and "Client" as shown below :   |  |  | | --- | --- | |  |  |   Write the commands in SQL queries for the following :  (i) To display the details of Product whose Price is in the range of 40 and 120 (Both values included)  (ii) To display the ClientName, City from table Client and ProductName and Price from table Product, with their corresponding matching P ID.  (iii) To increase the Price of all the Products by 20. |
|  | (i) SELECT \* FROM PRODUCT WHERE PRICE BETWEEN 40 AND 120;  (ii) SELECT B.ClientName, B.City, A.ProductName, A.Price  FROM PRODUCT AS A INNER JOIN CLIENT AS B  ON A.P\_ID = B.P\_ID;  (iii) UPDATE PRODUCT SET PRICE = PRICE + 20; |
| 6. | In a. Database School there are two tables Member and Division as show below.   |  |  | | --- | --- | |  |  |   (i) Identify the foreign key in the table Member.  (ii) What output, you will get, when an equi-join query is executed to get the NAME from Member Table and corresponding DivName from Division table ? |
|  | (i) Divno column is foreign key in the table member.  (ii) Shankhya, Media and Sunish, Dance. |
| 7. | In a Database there are two tables :   |  |  | | --- | --- | | Table ITEM: |  |   Write SQL queries for the following :  (i) To display ICode, IName and corresponding Brand of those Items, whose Price is between 20000 and 45000 (both values inclusive).  (ii) To display ICode, Price and BName, of the item which has IName as "Television".  (iii) To increase the price of all the Items by 15%. |
|  | **(i) SELECT A.ICode, A.Iname, B.Brand**  **FROM ITEM AS A INNER JOIN BRAND AS B**  **ON A.ICode = B.ICode**  **WHERE A.Price BETWEEN 20000 AND 45000;**  **(ii) SELECT A.ICode, A.Price, B.Brand**  **FROM ITEM AS A INNER JOIN BRAND AS B**  **ON A.ICode = B.ICode**  **WHERE** IName = "Television"**;**  **(iii) UPDATE ITEM SET PRICE = PRICE + PRICE\*0.15;** |
| 8. | In a Database there are two tables :   |  |  | | --- | --- | | Table MAGAZINE:  7 | 8 |   (i) Which column can be set as the PRIMARY KEY in the MAGAZINE table?  (ii) Which column in the ‘MAGAZINE’ table is the foreign key?  (iii) How many rows and columns will be there in the Cartesian product of the above 2 tables.  (iv) Write command in SQL to display the mag\_code, Mag\_Title and corresponding types for all the Magazines.  (v) Write the output :   1. Select Mag\_Code, Mag\_Title, Number\_of\_Pages, Type From MAGAZINE,MAGTYPE Where Magazine.Mag\_Category=Magtype.Mag\_Category and Type=’Spiritual’; |
|  | (i) Mag\_Code can be set as primary key in the magazine table.  (ii) Mag\_Category can be set as foreign key in the magazine table.  (iii) 6 columns and 16 rows.  (iv) SELECT A.Mag\_Code, A.Mag\_Title, B.Type  FROM MAGZINE AS A INNER JOIN MAGTYPE AS B  ON A.Mag\_Category = B.Mag\_Category;  (v) 1, Good Deeds, 60, Spiritual and 4, Karma, 50, Cookery. |
| 9. | In a Database Kamataka\_Sangam there are two tables with the instances given below :   |  |  | | --- | --- | |  |  |   Write SQL queries for the following :  (i) To count how many addresses are not having NULL values in the address column of students table.  (ii) To display Name, Class from STUDENT table and the corresponding Grade from SPORTS table.  (iii) To display Name of the student and their corresponding Coachnames from STUDENTS and SPORTS tables. |
|  | **(i) SELECT COUNT(ADDRESS) FROM STUDENTS**  **WHERE ADDRESS IS NOT NULL;**  **(ii) SELECT A.NAME, A.CLASS, B.GRADE**  **FROM STUDENTS AS A LEFT JOIN SPORTS AS B**  **ON A.ADMNO = B.ADMNO;** |
| 10. | In a Database Multiplexes, there are two tables with the following data. Write SQL queries for (i) to (iii), which are based on TicketDetails and AgentDetails :   |  |  | | --- | --- | |  |  |   (i) To display Tcode, Name and Aname of all the records where the number of tickets sold is more than 5.  (ii) To display total number of tickets booked by agent “Mr. Ayush”  (iii) To display Acode, Aname and corresponding Tcode where Aname ends with “k”.  (iv) With reference to “TicketDetails” table, which column is the primary key ? Which column is the foreign key? Give reason(s) |
|  | (i) SELECT A.Tcode, A.Name, B.AName  FROM TicketDetails AS A LEFT JOIN AgentDetails AS B  ON A.Acode = B.Acode  WHERE Tickets > 5;  (ii) SELECT A.SUM(Tickets)  FROM TicketDetails AS A, AgentDetails AS B  WHERE B.Acode = “A02”;  (iii) SELECT B.Acode, B.AName, A.Tcode  FROM TicketDetails AS A INNER JOIN AgentDetails AS B  ON A.Acode = B.Acode  WHERE B.AName LIKE “%k”;  (iv) With reference to “TicketDetails” table Tcode is primary key and Acode is foreign key because Tcode is unique and not null and it helps to find ticket details, A\_code is present in agentdetails table which works as a reference here and it ensures each ticket is associated to valid agent. |
| 11. | In a database there are two tables ‘CD’ and ‘TYPE’ as shown below :   |  |  | | --- | --- | |  |  |   (i) Name the Primary key in ‘‘CD’’ table.  (ii) Name the foreign key in ‘‘CD’’ table.  (iii) Write the Cardinality and Degree of ‘‘TYPE’’ table.  (iv) Check every value in CATEGORY column of both the tables. Do you find any discrepancy ? State the discrepancy. |
|  | (i) CODE column is the primary key in CD table.  (ii) CATEGORY column is foreign key in CD table.  (iii) Cardinality is 4 and Degree is 2 which is number columns in TYPE table.  (iv) There are two discrepancy 40 and 78 present in TYPE table but not present in CD table. |
|  |  |
| 13. | Consider the tables ‘Flights’ & ‘Fares’ given below:  Flights   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **FNO** | **SOURCE** | **DEST** | **NO\_OF\_FL** | **NO\_OF\_STOP** |  | | IC301 | MUMBAI | BANGALORE | 3 | 2 |  | | IC799 | BANGALORE | KOLKATA | 8 | 3 |  | | MC101 | DELHI | VARANASI | 6 | 0 |  | | IC302 | MUMBAI | KOCHI | 1 | 4 |  | | AM812 | LUCKNOW | DELHI | 4 | 0 |  | | MU499 | DELHI | CHENNAI | 3 | 3 |  |   Fares   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **FNO** | **AIRLINES** | **FARE** | **TAX** |  | | IC301 | Indian Airlines | 9425 | 5 |  | | IC799 | Spice Jet | 8846 | 10 |  | | MC101 | Deccan Airlines | 4210 | 7 |  | | IC302 | Jet Airways | 13894 | 5 |  | | AM812 | Indian Airlines | 4500 | 6 |  | | MU499 | Sahara | 12000 | 4 |  |   With reference to these tables, write commands in SQL for (i) and (ii) and output for (iii) below:  i. To display flight number, source, airlines of those flights where fare is less than Rs. 10000.  ii. To count total no of Indian Airlines flights starting from various cities.  iii. SELECT FLIGHTS.FNO, NO\_OF\_FL, AIRLINES FROM FLIGHTS,FARES WHERE FLIGHTS.FNO = FARES.FNO AND SOURCE=’DELHI’; |
|  | (i) SELECT A.FNO, A.SOURCE, B.AIRLINES, B.FARE  FROM Flights AS A INNER JOIN Fares AS B  ON A.FNO = B.FNO  WHERE FARE < 10000;  (ii) SELECT COUNT(\*) FROM FARES  WHERE AIRLINES = “INDIAN AIRLINES”;  (iii) MC101, 6, Deccan Airlines and MU499, 3, Sahara. |
| 14. | A table STUDENT has 5 rows and 3 columns. Table ACTIVITY has 4 rows and 2 columns. What will be the cardinality and degree of the Cartesian product of them ? |
|  | Cardinality is 20 and Degree is 5. |
| 15. | Consider the following table named “GARMENT”.    What is the degree and cardinality of ‘Garment’ table ?  Degree is 5 and Cardinality is 6. |
| 16. | In a Database, there are two tables given below :    Write SQL Queries for the following :  (i) To display employee ids, names of employees, job ids with corresponding job titles.  (ii) To display names of employees, sales and corresponding job titles who have achieved sales more than 1300000.  (iii) To display names and corresponding job titles of those employee who have ‘SINGH’ (anywhere) in their names.  (iv) Identify foreign key in the table EMPLOYEE. |
|  | (i) SELECT A.EMPLOYEEID, A.NAME, A.JOBID, B.JOBTITLE  FROM EMPLOYEE AS A INNER JOIN JOB AS B  ON A.JOBID = B.JOBID;  (ii) SELECT A.EMPLOYEE, A.SALES, B.JOBTITLE  FROM EMPLOYEE AS A INNER JOIN JOB AS B  ON A.JOBID = B.JOBID  WHERE A.SALES > 1300000;  (iii) SELECT A.NAMES, B.JOBTITLE  FROM EMPLOYEE AS A INNER JOIN JOB AS B  ON A.JOBID = B.JOBID  WHERE A.NAME LIKE “%SINGH%”;  (iv) JOBID is foreign key in the table EMPLOYEE. |
| 17. | Consider the tables given below.   |  |  | | --- | --- | | Salesperson | Orders | |  |  |   i. The SalespersonId column in the "Salesperson" table is the primary KEY.The  SalespersonId column in the "Orders" table is a foreign KEY.  ii. Can the ‘SalespersonId’ be set as the primary key in table ‘Orders’. Give reason. |
|  | ii. No, it can’t be set as primary key in table orders because it already primary key in salesperson table. |
| 18. | With reference to the above given tables, Write commands in SQL for (i) and  (ii) and output for (iii) below:   1. To display SalespersonID, names, orderids and order amount of all salespersons. 2. To display names ,salespersons ids and order ids of those sales persons whose names start with ‘A’ and sales amount is between 15000 and 20000. 3. SELECT Salesperson.SalespersonId, name, age, amount FROM Salesperson, orders WHERE Salesperson.salespersonId= Orders.salespersonId AND AGE BETWEEN 30 AND 45; |
|  | i. SELECT A.SalespersonId, A.Name, B.OrderId, B.Amount  FROM Salesperson AS A INNER JOIN Orders AS B  ON A.SalespersonId = B.SalespersonId;  ii. SELECT A.SalespersonId, A.Name, B.OrderId  FROM Salesperson AS A INNER JOIN Orders AS B  ON A.SalespersonId = B.SalespersonId  WHERE A.NAME LIKE “A%” AND B.AMOUNT BETWEEN 15000 AND 20000;  iii. 2,Sunil,34,18000 and 5,Chris,34,46000 and 7,Amaaya,41,24000. |
| 19. | Consider the tables given below :  Table : Faculty   |  |  |  |  |  | | --- | --- | --- | --- | --- | | TeacherId | Name | Address | State | PhoneNumber | | T101 | Savita Sharma | A-151, Adarsh  Nagar | Delhi | 991019564 | | T102 | Deepak Ghai | K-5/52, Vikas  Vihar | Mumbai | 893466448 | | T103 | MahaLakshmi | D-6 | Delhi | 981166568 | | T104 | Simi Arora |  | Mumbai | 658777564 |   Table : Course   |  |  |  |  | | --- | --- | --- | --- | | CourseId | Subject | TeacherId | Fee | | C101 | Introductory Mathematics | T101 | 4500 | | C103 | Physics | T101 | 5000 | | C104 | Introductory Computer Science | T102 | 4000 | | C105 | Advance Computer Science | T104 | 6500 |   (i) Which column is used to relate the two tables ?  (ii) Is it possible to have a primary key and a foreign key both in one table ? Justify your answer with the help of table given above. |
|  | (i) TeacherId column is used to relate the two tables.  (ii) Yes it is possible, primary key is need to be a unique and not null so that it can be used as reference between two tables and foreign key can be null and not unique, it takes reference from primary key of other table and at the same time this table can have their primary key, so that this table can be used in any other table. |
| 20. | With reference to the above given tables, write commands in SQL for (i) and (ii)  and output for (iii) :  (i) To display CourseId, TeacherId, Name of Teacher, Phone Number of Teachers living in Delhi.  (ii) To display TeacherID, Names of Teachers, Subjects of all teachers with names of Teachers starting with ‘S’.  (iii) SELECT CourseId, Subject,Course.TeacherId,Name,PhoneNumber FROM  Faculty,Course WHERE Faculty.TeacherId = Course.TeacherId AND Fee>=5000; |
|  | (i) SELECT B.CourseId, A.TeacherId, A.Name, A.PhoneNumber  FROM Faculty AS A LEFT JOIN Course AS B  ON A.TeacherId = B.TeacherId  WHERE State = “Delhi”;  (ii) SELECT A.TeacherId, A.Name, B.Subject  FROM Faculty AS A LEFT JOIN Course AS B  ON A.TeacherId = B.TeacherId  WHERE A.Name LIKE "S%";  (iii) C103, Physics, T101, Savita Sharma, 991019564.  C105, Advance Computer Science, T104, Simi Arora, 658777564. |
| 21. | Consider the tables given below which are linked with each other and maintains referential integrity:  Table: SAP    Table : Store    With reference to the above given tables, write commands in SQL for (i) and (ii) and output for (iii) below:   1. To display the ItemCode,ItemName and ReceivedDate of all the items. 2. To display SAPID,ItemName,ItemStorageLocation of all the items whose Received date is after 2nd May 2016. 3. SELECT SAPID,ItemName,STOREID FROM SAP,Store WHERE SAP.ItemCode=Store.ItemCode AND StoreLocation = “Hauz Khas” 4. What will be the degree and cardinality of the cartesian product formed while combining both the above given tables ‘SAP’ and ‘Store’ ? 5. Sangeeta is not able to add a new record in the table ‘Store’ through the following query:   Insert into store values (1206,1006,’Karol Bagh’, ‘2016/07/25’);  Identify the error if there is any |
|  | i. SELECT A.ItemCode, A.ItemName, B.ReceivedDate  FROM SAP AS A INNER JOIN Store AS B  ON A.ItemCode = B.ItemCode;  ii. SELECT A.SAPID, A.ItemName, A.ItemStorageLocation  FROM SAP AS A, Store AS B  WHERE A.ItemCode = B.ItemCode AND B.ReceivedDate > "2016-05-02";  iii. S1001, Receiver, 1201.  iv. Cardinality is 25 and Degree is 8.  v. There is an error in the SQL query: Insert into store values (1206,1006,’Karol Bagh’, ‘2016/07/25’);. The error is that the ItemCode, 1006, does not exist in the SAP table. This is a violation of the referential integrity constraint that is enforced between the two tables.  To fix the error, Sangeeta needs to make sure that the ItemCode exists in the SAP table before trying to insert a new record into the Store table. She can do this by checking the SAP table first, or by using a foreign key constraint to enforce the referential integrity constraint between the two tables.  With foreign key constraint in place, the MySQL database will prevent Sangeeta from inserting a new record into the Store table if the ItemCode does not exist in the SAP table. |

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| --- | --- |
| 6. | Geetanjali had created a table “Customer” in the database “Test”. Immediately after the successful creation of the database, she wrote the Rollback command to undo the creation of the table. Did she execute rollback successfully? Explain. |
|  | No, because rollback only applies for DML commands like INSERT, UPDATE, DELETE, it doesn’t applies for the CREATE DATABASE, so she can’t rollback the creation of database but if she want to undo the creation of the database she can do this by DROP DATABASE Command. |
| 7. | Given below is the ‘Department’ table :  SET AUTOCOMMIT = 0;  UPDATE Department SET DEPNAME = ‘OFFICE’ WHERE DEPNAME =  ‘ADMIN’;  INSERT INTO Department VALUES (104, ‘HRD’);  UPDATE Department SET DEPNAME = ‘FRONT OFFICE’ WHERE  DEPNAME = ‘RECEPTION’;  COMMIT;  DELETE FROM Department WHERE DEPNAME = ‘FRONT OFFICE’;  ROLLBACK;  SELECT \* FROM Department;  What will be the output of the above given SELECT statement ? |
|  | |  |  | | --- | --- | | **DEPCODE** | **DEPNAME** | | **101** | **OFFICE** | | **102** | **FRONT OFFICE** | | **103** | **PERSONNEL** | | **104** | **HRD** | |