INDIAN SCHOOL DARSAIT
DEPARTMENT OF ICT

Subject: Computer Science **Topic:** Databases and SQL **WorksheetNo.:** 11

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Name of the Student :_____ **Class & Div:** XII __ **Roll Number :** ___

1. What is a relation? What is the difference between a tuple and an attribute?
2. What are DDL and DML? Give examples.
3. What is relation? Define the relational data model.
4. What do you understand by the terms Primary Key and Degree of a relation in relational database?
5. Differentiate between primary key and alternate key.
6. What do you understand by Candidate Keys in a table? Give a suitable example of Candidate keys from a table containing some meaningful data.
7. Give a suitable example of a table with sample data and illustrate Primary and Alternate Keys in it.
8. What do you understand by the term alternate key and degree of a relation in a relational database?
9. What do you understand by the terms Alternate key and Foreign Key of a relation?
10. What is foreign Key? What is its purpose?
11. What do you understand by the terms Cardinality and Degree of the table?
12. What is the main function of DBA.
13. Define database.
14. Explain RDBMS.
15. Explain the users of the database.
16. With diagrams explain the different data models in the database.
17. What is the difference between Where and Having Clause?
18. What do you understand by constraints?
19. Write some features of SQL?
20. Define the following terminologies used in Relational Algebra:
    (i)selection (ii) projection (iii) union (iv) Cartesian product
21. Differentiate between primary key and candidate key in a relation?
22. Write a query on the customers table whose output will exclude all customers with a rating <=100, unless they are located in Shimla.
23. Write a query that lists customers in descending order of rating. Output the rating field first, followed by the customer's name and number.

24. Write a command that puts the following values, in their given order, into the salesman table: cust-name-Manisha, city-Manali, comm.- NULL, cust-num-1901.

25. From the below table identify the most suitable field for Primary key and candidate key. Also menion its cardinality and degree:

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV.
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP. Sc.	68	I
3	DIVYA	300	CHEMISTRY	62	I

26. Write SQL commands for (i) to (vii) and write the output for (vii) on the basis of teacher relation given below:

RELATION : TEACHER

No	Name	Age	Department	Dateofjoin	Salary	Sex
1	Jugal	24	Computer	10/01/97	12000	M
2	Sharmila	21	History	24/03/98	20000	F
3	Sandeep	22	Maths	12/12/96	30000	M
4	Sangeeta	25	History	01/07/99	40000	F
5	Rakesh	22	Maths	05/09/97	25000	M
6	Shyam	30	History	27/06/98	30000	M
7	Shiv Om	34	Computer	25/02/97	21000	M
8	Shalakha	23	Maths	31/07/97	20000	F

(i) To show all information about the teacher of History department.
(ii) To list the name of female teachers who are in Hindi department.
(iii) To list the names of all the teachers with their date of joining in ascending order.
(iv) To display Teachers Name, Salary, Age for male teachers only.
(v) To count the number of teachers with age > 23.
(vi) To insert a new row in the Teacher table with the following data.
9, “Raja”, 26, “Computer”, {13/05/95}, 2300, "M"
(vii) Give the output of the following SQL statements :

- SELECT COUNT (DISTINCT department) FROM teacher;
- SELECT MAX(age) FROM teacher WHERE sex = "F";
- SELECT AVG(salary) FROM teacher WHERE sex = "M";
- SELECT SUM(salary) FROM teacher WHERE dateofjoin<{12,07/96};

27. Write SQL commands for (i) to (iv) and write the outputs for (v) on the basis of table CLUB.

TABLE : CLUB

Coach ID	CoachNAME	AGE	SPORTS	Dateofapp	PAY	SEX
1	KUKERJA	35	KARATE	27/03/1996	1000	M
2	RAVINA	34	KARATE	20/ 01/1998	1200	F
3	KARAN	34	SQUASH	19/02/1998	2000	M
4	TARUN	33	BASKETBALL	01/01/1998	1500	M
5	ZUBIN	36	SWIMMING	12/01/1998	750	M
6	KETAKI	36	SWIMMING	24/02/1998	800	F
7	ANKITA	39	SQUASH	20/02/1998	2200	F
8	ZAREEN	37	KARATE	22/02/1998	1100	F
9	KUSH	41	SWIMMING	13/01/1998	900	M
10	SHAILYA	37	BASKETBALL	19/02/1998	1700	M

(i) To show all information about the swimming coaches in the club.
(ii) To list name of all coaches with their date of appointment (DATEOFAPP) in descending order.
(iii)To display a report, showing coachname, pay, age and bonus (15% of pay) for all the coaches.
(iv) To insert a new row in the CLUB table with the following data :
11, "PRAKASH", 37, "SQUASH", {25/02/98}, 2500, "M"
(v) Give the output of following SQL statements :

- SELECT COUNT (DISTINCT sports) FROM club;
- SELECT MIN (age) FROM club WHERE sex = "F";
- (iii)SELECT AVG(pay) FROM club WHERE sports ="KARATE";
- SELECT SUM(pay) FROM club WHERE dateofapp> {31/01/98};

28. Write SQL commands for (i) to (vii) and write the output for (vii) for Lab relations :

RELATION : LAB

No.	ItemName	Cost	QuantityPerItem	DateofPurchase	Warranty	Operational
1	Computer	60000	9	21/5/96	2	7
2	Printer	15000	3	21/5/97	4	2
3	Scanner	13900	1	29/8/98	3	1
4	Camera	21901	2	13/6/96	1	2
5	Hub	8000	1	31 10/99	2	1
6	UPS	5000	5	21/5/96	1	4
7	Plotter	25000	2	11/1/2000	2	2

(i) To select the Itemname purchased after 31/10/97.
(ii) To list the ItemName, which are within the Warranty period till present date.
(iii) To list the ItemName in ascending order of the date of purchase
(iv) To display ItemName, CostPerItem and Quantity whose Warranty is over.
(v) To count the number of items whose cost is more than 10000.
(vi) To insert a new record in the Lab table.
(vii) Give the output of the following SQL command :

- SELECT MIN (DISTINCT quantity) FROM lab;
- SELECT MIN(warranty) FROM lab WHERE quantity = 2;
- SELECT SUM(costperitem) FROM lab WHERE quantity >2;
- SELECT AVG(csostperitem) FROM lab WHERE dateofpurchase<{l/199};

29. Given the following tables for a database LIBRARY, write SQL commands for (i) to (vi) and write the output for (vi)

Table : **Books**

Book_Id	Book_Name	Author_Name	Publishers	Price	Type	Quantity
F0001	The Tears	William Hopkins	First Publ.	750	Fiction	10
F0002	Thunderbolts	Anna Roberts	First Publ.	700	Fiction	5
T0001	My First C++	Brian & Brooke	EPB	250	Text	10
T0002	C++ Brainworks	A.W. Rossaine	TDH	325	Text	5
C0001	Fast Cook	Lata Kapoor	EPB	350	Cookery	8

Table : **Issued**

Book_Id	Quantity_Issued
F0001	3
T0001	1
C0001	5

(i) To show Book name, Author name and Price of books of EPB publishers
(ii) To list the names of books of Fiction Type
(iii) To display the names and price of the books in descending order of their price
(iv) To increase the price of all books of First Publ. by 50
(v) To insert a new row in the table Issued having the following data : "F0002", 4
(vi) Give the output of the following queries based on the above tables :

- SELECT COUNT(DISTINCT Publishers) FROM Books
- SELECT SUM(Price) FROM Books WHERE Quantity >5
- SELECT Book_Name, Author_Name FROM Books WHERE Price<500
- SELECT COUNT (*) FROM Books

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

Table: STORE

Item No	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener Chlassic	23	60	8	31-jun-09
2003	Ball	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	Tera Supply

Write SQL commands for the following statements :
(i) To display details of all the items in the Store table in ascending order of LastBuy.
(ii) To display ItemNo and Item name of those items from Store table Whose Rate is more than 15 Rupees.
(iii)To display the details of those items whose Suppliers code (Scode) is 22 or Quantity in Store (Qty) is more than 110 from the table Store.
(iv) To display Minimum Rate of items for each Supplier individually as per Scode from the table Store.
(v) Give the output of the following SQL queries:

- SELECT COUNT (DISTINCT Scode) FROM Store;
- SELECT Rate*Qty FROM Store WHERE ItemNO = 2004;
- SELECT Item, Sname FROM Store S, Suppliers P WHERE S.Scode = P.Scode AND Item No = 2006 ;
- SELECT MAX (LastBuy) FROM Store ;

31. Consider the following tables WORKER and PAYLEVEL and answer the given questions.

Table: WORKER

ECODE	NAME	DESIG	PLEVEL	DOJ	DOB
11	Radhe Shyam	Supervisor	P001	13-Sep-2004	23-Aug-1981
12	Chander Nath	Operator	P003	22-Feb-2010	12-Jul-1987
13	Fizza	Operator	P003	14-Jun-2009	14-Oct-1983
15	Ameen Ahmed	Mechanic	P002	21-Aug-2006	13-Mar-1984
18	Sanya	Clerk	P002	19-Dec-2005	09-Jun-1983

Table: PAYLEVEL

PLEVEL	PAY	ALLOWANCE
P001	26000	12000
P002	22000	10000
P003	12000	6000

Write SQL commands for the following statements:
(i) To display the details of all WORKERs, descending order of DOB.
(ii) To display NAME and DESIG of those WORKERs whose PLEVEL iseither P001 or P002.
(iii)To display the content of all the WORKERs table, whose DOB is inbetween „19-JAN-1984‟ and 18-JAN-1987‟.
(iv) To add a new row with the following :
19, „Days Kishore‟, „Operator‟, „P003‟. „19-Jun-2008‟, „11-Jul-1984‟

Give the output of the following SQL queries :
(i) SELECT COUNT (PLEVEL), PLEVEL FROM WORKER GROUPBY PLEVEL;
(ii) SELECT MAX(DOB), MIN(DOJ) FROM WORKER;
(iii) SELECT Name, Pay FROM WORKER W, PAYLEVEL P WHEREW.PLEVEL = S.PLEVEL AND P.ECODE<13;
(iv) SELECT PLEVEL, PAY+ALLOWANCE FROM PAYLEVELWHERE PLEVEL = "P003";

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

Table: GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Table.

PCode	Name	Gcode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

(i) To display the name of all Games with their Gcodes
(ii)To display details of those games which are having PrizeMoney more than 7000.
(iii) To display the content of the GAMES table in ascending order of ScheduleDate.
(iv) To display sum of PrizeMoney for each of the Number of participation groupings (as shown in column Number 2 or 4)
(v) SELECT COUNT(DISTINCT Number) FROM GAMES;
(vi)SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
(vii) SELECT SUM(PrizeMoney) FROM GAMES;
(viii) SELECT DISTINCT Gcode FROM PLAYER;

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

SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

(i) To display TEACHERNAME, PERIODS of all teachers whose periods less than 25.
(ii) To display TEACHERNAME, CODE and DESIGNATION from tables SCHOOL and ADMINwhose gender is male.
(iii) To display number of teachers in each subject wise.
(iv) To display CODE, TEACHERNAME and SUBJECT of all teachers who have joined the schoolafter 01/01/1999.

(v) SELECT MAX (EXPERIENCE), SUBJECT FROM SCHOOL GROUP BY SUBJECT;
(vi) SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION= 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE;
(vii) SELECT DESIGNATION, COUNT (*) FROM ADMIN GROUP BY DESIGNATION HAVING COUNT (*) <2;
(viii) SELECT COUNT (DISTINCT SUBJECT) FROM SCHOOL;