CBSE 2024 COMPARTMENT

24. (a) Mr. Atharva is given a task to create a database, **Admin**. He has to create a table, **users** in the database with the following columns : *1+1=2*

User_id - int

User_name - varchar(20)

Password - varchar(10)

Help him by writing SQL queries for both tasks.

OR

(b) Ms. Rita is a database administrator at a school. She is working on the table, **student** containing the columns like **Stud_id**, **Name**, **Class** and **Stream**. She has been asked by the Principal to strike off the record of a student named **Rahul** with **student_id** as **100** from the school records and add another student who has been admitted with the following details : *1+1=2*

Stud_id - 123

Name - Rajeev

Class - 12

Stream - Science

Help her by writing SQL queries for both tasks.

27. Consider the table **Stationery** given below and write the output of the SQL queries that follow. *3*

Table : Stationery

ITEMNO	ITEM	DISTRIBUTOR	QTY	PRICE
401	Ball Pen 0.5	Reliable Stationers	100	16
402	Gel Pen Premium	Classic Plastics	150	20
403	Eraser Big	Clear Deals	210	10
404	Eraser Small	Clear Deals	200	5
405	Sharpener Classic	Classic Plastics	150	8
406	Gel Pen Classic	Classic Plastics	100	15

(i) SELECT DISTRIBUTOR, SUM(QTY) FROM STATIONERY GROUP BY DISTRIBUTOR;

(ii) SELECT ITEMNO, ITEM FROM STATIONERY WHERE DISTRIBUTOR = "Classic Plastics" AND PRICE > 10;

(iii) SELCET ITEM, QTY * PRICE AS "AMOUNT" FROM STATIONERY WHERE ITEMNO = 402;

29. Consider the table Rent_cab, given below :

Table : Rent_cab

Vcode	VName	Make	Color	Charges
101	Big car	Carus	White	15
102	Small car	Polestar	Silver	10
103	Family car	Windspeed	Black	20
104	Classic	Studio	White	30
105	Luxury	Trona	Red	9

Based on the given table, write SQL queries for the following : *3*

(i) Add a primary key to a column name Vcode.

(ii) Increase the charges of all the cabs by 10%.

(iii) Delete all the cabs whose maker name is "Carus".

31. Consider the tables GAMES and PLAYERS given below :

Table : GAMES

GCode	GameName	Type	Number	PrizeMoney
101	Carrom Board	Indoor	2	5000
102	Badminton	Outdoor	2	12000
103	Table Tennis	Indoor	4	NULL
104	Chess	Indoor	2	9000
105	Lawn Tennis	Outdoor	4	25000

Table : PLAYERS

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

Write SQL queries for the following : *4*

(i) Display the game type and average number of games played in each type.

(ii) Display prize money, name of the game, and name of the players from the tables Games and Players.

(iii) Display the types of games without repetition.

(iv) Display the name of the game and prize money of those games whose prize money is known.

35. (a) (i) Define the term foreign key with respect to RDBMS.

(ii) Sangeeta wants to write a program in Python to delete the record of a candidate "Raman" from the table named **Placement** in **MySQL** database, **Agency**:

The table Placement in MySQL contains the following attributes :

CName – String
Dept – String
Place – String
Salary – integer

Note the following to establish connectivity between Python and MySQL :

- Username – **root**
- Password – **job**
- Host – **localhost**

Help Sangeeta to write the program in Python for the above mentioned task. *5*

OR

(b) (i) Give one difference between CHAR and VARCHAR datatype in MySQL.

(ii) Rahim wants to write a program in Python to insert the following record in the table named **Bank_Account** in MySQL database, **Bank** :

- **Accno** – integer
- **Cname** – string
- **Atype** – string
- **Amount** – float

Note the following to establish connectivity between Python and MySQL :

- Username – **admin**
- Password – **root**
- Host – **localhost**

The values of fields **Accno**, **Cname**, **Atype** and **Amount** have to be accepted from the user. Help Rahim to write the program in Python. *5*

24. (A) Ms. Veda created a table named **Sports** in a MySQL database, containing columns **Game_id, P_Age and G_name.** 2

After creating the table, she realized that the attribute, **Category** has to be added. Help her to write a command to add the **Category** column. Thereafter, write the command to insert the following record in the table :

Game_id : G42

P_Age : Above 18

G_name : Chess

Category : Senior

OR

(B) Write the SQL commands to perform the following tasks :

(i) View the list of tables in the database, **Exam**.

(ii) View the structure of the table, **Term1**.

27. Consider the table ORDERS given below and write the output of the SQL queries that follow : **1 × 3 = 3**

ORDNO	ITEM	QTY	RATE	ORDATE
1001	RICE	23	120	2023-09-10
1002	PULSES	13	120	2023-10-18
1003	RICE	25	110	2023-11-17
1004	WHEAT	28	65	2023-12-25
1005	PULSES	16	110	2024-01-15
1006	WHEAT	27	55	2024-04-15
1007	WHEAT	25	60	2024-04-30

(i) `SELECT ITEM, SUM(QTY) FROM ORDERS GROUP BY ITEM;`

(ii) `SELECT ITEM, QTY FROM ORDERS WHERE ORDATE BETWEEN '2023-11-01' AND '2023-12-31';`

(iii) `SELECT ORDNO, ORDATE FROM ORDERS WHERE ITEM = 'WHEAT' AND RATE>=60;.`

29. Consider the table **Projects** given below : $1 \times 3 = 3$

Table : Projects

P_id	Pname	Language	Startdate	Enddate
P001	School Management System	Python	2023-01-12	2023-04-03
P002	Hotel Management System	C++	2022-12-01	2023-02-02
P003	Blood Bank	Python	2023-02-11	2023-03-02
P004	Payroll Management System	Python	2023-03-12	2023-06-02

Based on the given table, write SQL queries for the following :

(i) Add the constraint, **primary key** to column **P_id** in the existing table **Projects.**

(ii) To change the language to **Python** of the project whose id is **P002.**

(iii) To delete the table **Projects** from MySQL database along with its data.

31. Consider the tables **Admin** and **Transport** given below : $1 \times 4 = 4$

Table : Admin

S_id	S_name	Address	S_type
S001	Sandhya	Rohini	Day Boarder
S002	Vedanshi	Rohtak	Day Scholar
S003	Vibhu	Raj Nagar	NULL
S004	Atharva	Rampur	Day Boarder

Table : Transport

S_id	Bus_no	Stop_name
S002	TSS10	Sarai Kale Khan
S004	TSS12	Sainik Vihar
S005	TSS10	Kamla Nagar

Write SQL queries for the following :

(i) Display the student name and their stop name from the tables **Admin** and **Transport**.

(ii) Display the number of students whose **S_type** is not known.

(iii) Display all details of the students whose name starts with **'V'** .

(iv) Display student id and address in alphabetical order of student name, from the table **Admin**.

35. (A) (i) Define cartesian product with respect to RDBMS. **1 + 4 = 5**

(ii) Sunil wants to write a program in Python to update the quantity to **20** of the records whose item code is **111** in the table named **shop** in MySQL database named **Keeper**.

The table **shop** in MySQL contains the following attributes :

- **Item_code**: Item code (Integer)
- **Item_name**: Name of item (String)
- **Qty**: Quantity of item (Integer)
- **Price**: Price of item (Integer)

Consider the following to establish connectivity between Python and MySQL :

- Username : **admin**
- Password : **Shopping**
- Host : **localhost**

OR

(B) (i) Give any two features of SQL.

(ii) Sumit wants to write a code in Python to display all the details of the passengers from the table **flight** in MySQL database, **Travel**. The table contains the following attributes :

F_code: Flight code (String)

F_name: Name of flight (String)

Source: Departure city of flight (String)

Destination: Destination city of flight (String)

Consider the following to establish connectivity between Python and MySQL :

- Username : **root**
- Password : **airplane**
- Host : **localhost**

CBSE 2023 COMPARTMENT

---

22. Explain the usage of **HAVING** clause in **GROUP BY** command in RDBMS with the help of an example. *2*

25. (a) Differentiate between **IN** and **BETWEEN** operators in SQL with appropriate examples. *2*

OR

(b) Which of the following is ***NOT*** a DML command. *2*

DELETE, DROP, INSERT, UPDATE

26. (a) Consider the following tables – Student and Sport :

Table : Student

ADMNO	NAME	CLASS
1100	MEENA	X
1101	VANI	XI

Table : Sport

ADMNO	GAME
1100	CRICKET
1103	FOOTBALL

What will be the output of the following statement ? *1*

```
SELECT * FROM Student, Sport;
```

(b) Write the output of the queries (i) to (iv) based on the table, GARMENT given below : *2*

TABLE : GARMENT

GCODE	TYPE	PRICE	FCODE	ODR_DATE
G101	EVENING GOWN	850	F03	2008-12-19
G102	SLACKS	750	F02	2020-10-20
G103	FROCK	1000	F01	2021-09-09
G104	TULIP SKIRT	1550	F01	2021-08-10
G105	BABY TOP	1500	F02	2020-03-31
G106	FORMAL PANT	1250	F01	2019-01-06

(i)
```
SELECT DISTINCT(COUNT(FCODE))FROM GARMENT;
```

(ii)
```
SELECT FCODE, COUNT(*), MIN(PRICE) FROM
GARMENT GROUP BY FCODE HAVING COUNT(*)>1;
```

(iii)
```
SELECT TYPE FROM GARMENT WHERE ODR_DATE
>'2021-02-01' AND PRICE <1500;
```

(iv)
```
SELECT * FROM GARMENT WHERE TYPE LIKE 'F%';
```

28. Write the output of any three SQL queries (i) to (iv) based on the tables COMPANY and CUSTOMER given below : *3*

Table : COMPANY

CID	C_NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	CHENNAI	MOBILE
666	DELL	DELHI	LAPTOP

Table : CUSTOMER

CUSTID	CID	NAME	PRICE	QTY
C01	222	ROHIT SHARMA	70000	20
C02	666	DEEPIKA KUMARI	50000	10
C03	111	MOHAN KUMAR	30000	5
C04	555	RADHA MOHAN	30000	11

(i) `SELECT PRODUCTNAME, COUNT(*)FROM COMPANY GROUP BY PRODUCTNAME HAVING COUNT(*)> 2;`

(ii) `SELECT NAME, PRICE, PRODUCTNAME FROM COMPANY C, CUSTOMER CT WHERE C.CID = CU.CID AND C_NAME = 'SONY';`

(iii) `SELECT DISTINCT CITY FROM COMPANY;`

(iv) `SELECT * FROM COMPANY WHERE C_NAME LIKE '%ON%';`

34. The ABC Company is considering to maintain their salespersons records using SQL to store data. As a database administrator, Alia created the table Salesperson and also entered the data of 5 Salespersons.

Table : Salesperson

S_ID	S_NAME	AGE	S_AMOUNT	REGION
S001	SHYAM	35	20000	NORTH
S002	RISHABH	30	25000	EAST
S003	SUNIL	29	21000	NORTH
S004	RAHIL	39	22000	WEST
S005	AMIT	40	23000	EAST

Based on the data given above, answer the following questions :

(i) Identify the attribute that is best suited to be the Primary Key and why ? *1*

(ii) The Company has asked Alia to add another attribute in the table. What will be the new degree and cardinality of the above table ? *1*

(iii) Write the statements to : *2*

(a) Insert details of one salesman with appropriate data.

(b) Change the Region of salesman 'SHYAM' to 'SOUTH' in the table Salesperson.

OR (Option for part iii only)

(iii) Write the statement to : *2*

(a) Delete the record of salesman RISHABH, as he has left the company.

(b) Remove an attribute REGION from the table.

CBSE 2023

---

22. Explain the concept of "Alternate Key" in a Relational Database Management System with an appropriate example. **2**

25. (a) Differentiate between CHAR and VARCHAR data types in SQL with appropriate example. **2**

OR

(b) Name any two DDL and any two DML commands. **2**

26. (a) Consider the following tables – LOAN and BORROWER : **1 + 2**

Table : LOAN

LOAN_NO	B_NAME	AMOUNT
L-170	DELHI	3000
L-230	KANPUR	4000

Table : BORROWER

CUST_NAME	LOAN_NO
JOHN	L-171
KRISH	L-230
RAVYA	L-170

How many rows and columns will be there in the natural join of these two tables ?

(b) Write the output of the queries (i) to (iv) based on the table, WORKER given below :

TABLE: WORKER

W_ID	F_NAME	L_NAME	CITY	STATE
102	SAHIL	KHAN	KANPUR	UTTAR PRADESH
104	SAMEER	PARIKH	ROOP NAGAR	PUNJAB
105	MARY	JONES	DELHI	DELHI
106	MAHIR	SHARMA	SONIPAT	HARYANA
107	ATHARVA	BHARDWAJ	DELHI	DELHI
108	VEDA	SHARMA	KANPUR	UTTAR PRADESH

(i) `SELECT F_NAME, CITY FROM WORKER ORDER BY STATE DESC;`

(ii) `SELECT DISTINCT (CITY) FROM WORKER;`

(iii) `SELECT F_NAME, STATE FROM WORKER WHERE L_NAME LIKE '_HA%';`

(iv) `SELECT CITY,COUNT(*) FROM WORKER GROUP BY CITY;`

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations COMPUTER and SALES given below : **2**

Table : COMPUTER

PROD_ID	PROD_NAME	PRICE	COMPANY	TYPE
P001	MOUSE	200	LOGITECH	INPUT
P002	LASER PRINTER	4000	CANON	OUTPUT
P003	KEYBOARD	500	LOGITECH	INPUT
P004	JOYSTICK	1000	IBALL	INPUT
P005	SPEAKER	1200	CREATIVE	OUTPUT
P006	DESKJET PRINTER	4300	CANON	OUTPUT

Table : SALES

PROD_ID	QTY_SOLD	QUARTER
P002	4	1
P003	2	2
P001	3	2
P004	2	1

(i) `SELECT MIN(PRICE), MAX(PRICE) FROM COMPUTER;`

(ii) `SELECT COMPANY, COUNT(*) FROM COMPUTER GROUP BY COMPANY HAVING COUNT(COMPANY) > 1;`

(iii) `SELECT PROD_NAME, QTY_SOLD FROM COMPUTER C, SALES S WHERE C.PROD_ID=S.PROD_ID AND TYPE = 'INPUT';`

(iv) `SELECT PROD_NAME, COMPANY, QUARTER FROM COMPUTER C, SALES S WHERE C.PROD_ID=S. PROD_ID;`

(b) Write the command to view all databases. **1**

34. The school has asked their estate manager Mr. Rahul to maintain the data of all the labs in a table LAB. Rahul has created a table and entered data of 5 labs.

LABNO	LAB_NAME	INCHARGE	CAPACITY	FLOOR
L001	CHEMISTRY	Daisy	20	I
L002	BIOLOGY	Venky	20	II
L003	MATH	Preeti	15	I
L004	LANGUAGE	Daisy	36	III
L005	COMPUTER	Mary Kom	37	II

Based on the data given above answer the following questions :

(i) Identify the columns which can be considered as Candidate keys. **1**

(ii) Write the degree and cardinality of the table. **1**

(iii) Write the statements to : **2**

(a) Insert a new row with appropriate data.

(b) Increase the capacity of all the labs by 10 students which are on 'I' Floor.

OR

(Option for part (iii) only)

(iii) Write the statements to :

(a) Add a constraint PRIMARY KEY to the column LABNO in the table.

(b) Delete the table LAB. **2**

CBSE 2022 COMPARTMENT

---

3. Differentiate between Degree and Cardinality in the context of Relational Data Model. *2*

5. Write the output of the SQL queries (a) to (d) based on the table TRAVEL given below : *2*

Table : TRAVEL

T_ID	START	END	T_DATE	FARE
101	DELHI	CHENNAI	2021-12-25	4500
102	DELHI	BENGALURU	2021-11-20	4000
103	MUMBAI	CHENNAI	2020-12-10	5500
104	DELHI	MUMBAI	2019-12-20	4500
105	MUMBAI	BENGALURU	2022-01-15	5000

(a)
```
SELECT START, END FROM TRAVEL
WHERE FARE <= 4000 ;
```

(b)
```
SELECT T_ID, FARE FROM TRAVEL
WHERE T_DATE LIKE '2021-12-%' ;
```

(c)
```
SELECT T_ID, T_DATE FROM TRAVEL WHERE END = 'CHENNAI'
ORDER BY FARE ;
```

(d)
```
SELECT START, MIN(FARE)
FROM TRAVEL GROUP BY START ;
```

6. Write the output of the SQL queries (a) and (b) based on the following two tables FLIGHT and PASSENGER belonging to the same database : 2

Table : FLIGHT

FNO	DEPART	ARRIVE	FARE
F101	DELHI	CHENNAI	4500
F102	DELHI	BENGALURU	4000
F103	MUMBAI	CHENNAI	5500
F104	DELHI	MUMBAI	4500
F105	MUMBAI	BENGALURU	5000

Table : PASSENGER

PNO	NAME	FLIGHTDATE	FNO
P1	PRAKASH	2021-12-25	F101
P2	NOOR	2021-11-20	F103
P3	HARMEET	2020-12-10	NULL
P4	ANNIE	2019-12-20	F105

(a)
```
SELECT NAME, DEPART FROM FLIGHT
NATURAL JOIN PASSENGER ;
```

(b)
```
SELECT NAME, FARE
FROM PASSENGER P, FLIGHT F
WHERE F.FNO = P.FNO AND F.DEPART = 'MUMBAI' ;
```

7. (a) Explain Primary Key in the context of Relational Database Model. Support your answer with suitable example. 2

OR

(b) Consider the following table BATSMEN :

Table : BATSMEN

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	52

(i) Identify and write the name of the Candidate Keys in the given table BATSMEN.

(ii) How many tuples are there in the given table BATSMEN ? 2

9. (a) A SQL table BOOKS contains the following column names :

BOOKNO, BOOKNAME, QUANTITY, PRICE, AUTHOR

Write the SQL statement to add a new column REVIEW to store the reviews of the book. *1*

(b) Write the names of any two commands of **DDL** and any two commands of **DML** in SQL. *2*

10. Rashmi has forgotten the names of the databases, tables and the structure of the tables that she had created in Relational Database Management System (RDBMS) on her computer.

(a) Write the SQL statement to display the names of all the databases present in RDBMS application on her computer.

(b) Write the statement which she should execute to open the database named "STOCK".

(c) Write the statement which she should execute to display the structure of the table "ITEMS" existing in the above opened database "STOCK". *3*

11. Write SQL queries for (a) to (d) based on the tables CUSTOMER and TRANSACT given below : *4*

Table : CUSTOMER

CNO	NAME	GENDER	ADDRESS	PHONE
1001	Suresh	MALE	A-123, West Street	9310010010
1002	Anita	FEMALE	C-24, Court Lane	9121211212
1003	Harjas	MALE	T-1, Woods Avenue	9820021001

Table : TRANSACT

TNO	CNO	AMOUNT	TTYPE	TDATE
T1	1002	2000	DEBIT	2021-09-25
T2	1003	1500	CREDIT	2022-01-28
T3	1002	3500	CREDIT	2021-12-31
T4	1001	1000	DEBIT	2022-01-10

(a) Write the SQL statements to delete the records from table TRANSACT whose amount is less than 1000.

(b) Write a query to display the total AMOUNT of all DEBITs and all CREDITs.

(c) Write a query to display the NAME and corresponding AMOUNT of all CUSTOMERs who made a transaction type (TTYPE) of CREDIT.

(d) Write the SQL statement to change the Phone number of customer whose CNO is 1002 to 9988117700 in the table CUSTOMER.

3. Differentiate between the terms Attribute and Domain in the context of Relational Data Model. **2**

5. Write the output of SQL queries (a) to (d) based on the table VACCINATION_DATA given below : **2**

TABLE : **VACCINATION_DATA**

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07-20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

(a) SELECT Name, Age FROM VACCINATION_DATA
WHERE Dose2 IS NOT NULL AND Age > 40;

(b) SELECT City, COUNT(*) FROM VACCINATION_DATA GROUP BY City;

(c) SELECT DISTINCT City FROM VACCINATION_DATA;

(d) SELECT MAX (Dose1), MIN (Dose2) FROM VACCINATION_DATA;

6. Write the output of SQL queries (a) and (b) based on the following two tables DOCTOR and PATIENT belonging to the same database : **2**

Table : **DOCTOR**

DNO	DNAME	FEES
D1	AMITABH	1500
D2	ANIKET	1000
D3	NIKHIL	1500
D4	ANJANA	1500

Table : **PATIENT**

PNO	PNAME	ADMDATE	DNO
P1	NOOR	2021-12-25	D1
P2	ANNIE	2021-11-20	D2
P3	PRAKASH	2020-12-10	NULL
P4	HARMEET	2019-12-20	D1

(a)
```
SELECT DNAME, PNAME FROM DOCTOR
NATURAL JOIN PATIENT ;
```

(b)
```
SELECT PNAME, ADMDATE, FEES
FROM PATIENT P, DOCTOR D
WHERE D.DNO = P.DNO AND FEES > 1000;
```

7. Differentiate between Candidate Key and Primary Key in the context of Relational Database Model. **2**

OR

Consider the following table PLAYER :

Table : **PLAYER**

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	42

(a) Identify and write the name of the most appropriate column from the given table PLAYER that can be used as a Primary key.

(b) Define the term Degree in relational data model. What is the Degree of the given table PLAYER ?

9. (i) A SQL table **ITEMS** contains the following columns : **1**

INO, INAME, QUANTITY, PRICE, DISCOUNT

Write the SQL command to remove the column **DISCOUNT** from the table.

(ii) Categorize the following SQL commands into **DDL** and **DML** : **2**

CREATE, UPDATE, INSERT, DROP

10. Rohan is learning to work upon Relational Database Management System (RDBMS) application. Help him to perform following tasks : **3**

(a) To open the database named **"LIBRARY"**.

(b) To display the names of all the tables stored in the opened database.

(c) To display the structure of the table **"BOOKS"** existing in the already opened database **"LIBRARY"**.

11. Write SQL queries for (a) to (d) based on the tables PASSENGER and FLIGHT given below : **4**

Table : **PASSENGER**

PNO	NAME	GENDER	FNO
1001	Suresh	MALE	F101
1002	Anita	FEMALE	F104
1003	Harjas	MALE	F102
1004	Nita	FEMALE	F103

Table : **FLIGHT**

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2021-12-25	4500
F102	MUMBAI	BENGALURU	2021-11-20	4000
F103	DELHI	CHENNAI	2021-12-10	5500
F104	KOLKATA	MUMBAI	2021-12-20	4500
F105	DELHI	BENGALURU	2021-01-15	5000

(a) Write a query to change the fare to 6000 of the flight whose FNO is F104.

(b) Write a query to display the total number of MALE and FEMALE PASSENGERS.

(c) Write a query to display the **NAME**, corresponding **FARE** and **F_DATE** of all PASSENGERS who have a flight to **START** from DELHI.

(d) Write a query to delete the records of flights which end at Mumbai.