DB Questions

1. List down 5 differences between oracle and MySQL

Oracle (Points)

1. **License** – Commercial database (paid enterprise product).
2. **Programming Language** – Supports **PL/SQL** (Procedural Language extension of SQL).
3. **Scalability** – Highly scalable for large enterprise applications and high transaction systems.
4. **Partitioning** – Advanced partitioning features (range, list, hash, composite, etc.).
5. **Cost** – Expensive licensing and maintenance cost.
6. **Performance Features** – Advanced optimisation, indexing, and tuning capabilities.
7. **Security** – Strong enterprise-level security features (data masking, auditing, advanced encryption).
8. **Backup & Recovery** – Advanced recovery tools like RMAN (Recovery Manager).
9. **Used By** – Large enterprises, banking, telecom, government systems.
10. **Support** – Official enterprise support from Oracle Corporation.

MySQL (Points)

1. **License** – Open-source (Community Edition free; Enterprise Edition paid).
2. **Programming Language** – Does not support PL/SQL (uses standard SQL and stored procedures).
3. **Scalability** – Suitable for small to medium-scale applications (can scale but not as advanced as Oracle).
4. **Partitioning** – Basic partitioning features compared to Oracle.
5. **Cost** – Free (Community version).
6. **Performance** – Good performance for web applications and lightweight systems.
7. **Security** – Basic security features; less advanced compared to Oracle.
8. **Backup & Recovery** – Uses tools like mysqldump for backup.
9. **Used By** – Web applications, startups, small to mid-size companies.

10. **Support** – Community support available; enterprise support available in paid version.

2. There are 2 tables A and B (with 3 columns id, name, and date. Do the following.

a. Find the union of A and B

b. Find records which are present in A and not in B.

c. Find records which are not in A and not in B.

d. Find the count of records having same value of name more than 2 times in table A

(a)

```
SELECT * FROM A
UNION
SELECT * FROM B;
```

(b)

```
SELECT * FROM A
WHERE id NOT IN (SELECT id FROM B);
```

(c)

```
SELECT name, COUNT(*)
FROM A
GROUP BY name
HAVING COUNT(*) > 2;
```

(d)

```
SELECT * FROM A
WHERE date > '2023-04-01';
```

(3) Date greater than 1 April 2023

```
SELECT * FROM A
WHERE date > '2023-04-01';

SELECT * FROM A WHERE date > '2023-04-01'
UNION
SELECT * FROM B WHERE date > '2023-04-01';
```

(4)Date greater than 1 April 2023 and less than 3 April 2023

```
SELECT * FROM A
WHERE date > '2023-04-01'
AND date < '2023-04-03';
```

(5)Date equal to 1 April 2023

```
SELECT * FROM A
WHERE date = '2023-04-01';
```

(6)Name conditions

Name starts with S

```
SELECT * FROM A
WHERE name LIKE 'S%';
```

Name contains "so"

```
SELECT * FROM A
WHERE name LIKE '%so%';
```

(7)Combine First Name and Last Name (Tables C and D)

C(id, name) → first name
D(id, name) → last name

```
SELECT C.id,
CONCAT(C.name, ' ', D.name) AS full_name
FROM C
JOIN D ON C.id = D.id;
```

(8)Count of name = 'Amitabh' in both tables

```
SELECT
(SELECT COUNT(*) FROM A WHERE name = 'Amitabh') +
(SELECT COUNT(*) FROM B WHERE name = 'Amitabh')
AS total_count;
```

(9) Find the command to verify if MySQL is running or not.

Linux:

```
systemctl status mysql
```

OR

```
ps -ef | grep mysql
```

Windows:

net start | find "MySQL"

10. List down id and name of both the tables A and B

SELECT id, name FROM A
UNION
SELECT id, name FROM B;

Linux Questions

1. List down 10 commands of Linux

1. `ls` – List files and directories
2. `cd` – Change directory
3. `pwd` – Print current working directory
4. `mkdir` – Create a new directory
5. `rm` – Remove files or directories
6. `cp` – Copy files or directories
7. `mv` – Move or rename files
8. `cat` – Display file content

9. `grep` – Search pattern in file

2. Write the command to find out a particular pattern in a file.

grep "pattern" filename.txt

For example:

grep "error" logfile.txt

3. Write the command to find out a particular pattern in all files which is present in multiple directories (hint: recursive)

grep -r "pattern" /path/to/directory

Example:

grep -r "error" /home/user/

4. Write a command to see last 10 lines in the file.

tail -10 filename.txt

5. Write a command to see first 10 lines in a file.

head -10 filename.txt

6. You have a file with comma separated values, List the third column only from the file into a new file. Now assume the third column is an integer value. Find the unique occurrence of this integer value in the file along with the count.

cut -d',' -f3 input.csv > third_column.txt

7. There is a file with json format with simple structure. Convert this file into csv format.

Using `jq` (if installed):

jq -r '.[] | @csv' input.json > output.csv

OR using Python (alternative method):

python -m json.tool input.json

8. There is a csv file with 4 columns. First column a value in integer. The length of the value can be either 14, 15, 16. Find the count of record having value as 14.

awk -F',' 'length($1)==14 {count++} END {print count}' input.csv

- `-F','` sets comma as delimiter
- `length($1)==14` checks first column length
- `count++` increments counter

9. Find the command to find out if process XYZ is running.

ps -ef | grep XYZ

OR

pgrep XYZ

10. Find the pid of the process which is using TCP port number 10345.

lsof -i :10345

OR

netstat -tulnp | grep 10345