SQL Interview Questions with Example Tables and Queries

Example Table: employees

emp_id	name	department	salary	hire_date	manager_id
1	Alice	HR	50000	2020-01-10	NULL
2	Bob	IT	60000	2019-03-15	4
3	Charlie	IT	55000	2021-07-20	4
4	David	IT	40000	2018-06-01	NULL
5	Eve	Sales	45000	2022-02-10	6
6	Frank	Sales	30000	2023-08-01	NULL
7	Grace	HR	48000	2021-11-23	1

11. Employees who are also managers

```
SELECT DISTINCT e1.*
FROM employees e1
WHERE e1.emp_id IN (
  SELECT DISTINCT manager_id FROM employees WHERE manager_id IS NOT NULL
);
```

12. Employees who joined in the same month and year

```
SELECT e1.name, e2.name, e1.hire_date
FROM employees e1
JOIN employees e2
  ON MONTH(e1.hire_date) = MONTH(e2.hire_date)
 AND YEAR(e1.hire_date) = YEAR(e2.hire_date)
 AND e1.emp_id < e2.emp_id;
```

13. Employees older than the average age of employees in their department

```
SELECT *
FROM employees e1
WHERE age > (
  SELECT AVG(age) FROM employees e2 WHERE e2.department = e1.department
);
```

14. Employee(s) with the longest tenure

```
SELECT *
FROM employees
WHERE hire_date = (SELECT MIN(hire_date) FROM employees);
```

15. Delete all records where manager_id is NULL

```
DELETE FROM employees WHERE manager_id IS NULL;
```

16. All product pairs ordered together at least once

```
SELECT a.product_id AS product1, b.product_id AS product2
FROM order_details a
```

```
JOIN order_details b
  ON a.order_id = b.order_id AND a.product_id < b.product_id
GROUP BY a.product_id, b.product_id;
```

17. Average order value by customer each month

```
SELECT cust_id, YEAR(order_date) AS year, MONTH(order_date) AS month,
       AVG(amount) AS avg_order_value
FROM orders
GROUP BY cust_id, year, month;
```

18. Customers who made a purchase every month for the past year

```
SELECT cust_id FROM (
  SELECT cust_id, COUNT(DISTINCT MONTH(order_date)) AS active_months
  FROM orders
  WHERE order_date >= DATE_SUB(CURDATE(), INTERVAL 1 YEAR)
  GROUP BY cust_id
) sub WHERE active_months = 12;
```

19. Total revenue per region in a given quarter

```
SELECT c.region, QUARTER(o.order_date) AS qtr, SUM(o.amount) AS revenue
FROM orders o
JOIN customers c ON o.cust_id = c.cust_id
GROUP BY c.region, qtr;
```

20. First purchase date of each customer

```
SELECT cust_id, MIN(order_date) AS first_purchase
FROM orders
GROUP BY cust_id;
```

21. Year-on-year growth of revenue

```
SELECT YEAR(order_date) AS year, SUM(amount) AS total_revenue
FROM orders
GROUP BY year
ORDER BY year;
```

22. Find the Nth highest salary (e.g., 5th highest)

```
SELECT DISTINCT salary
FROM employees e1
WHERE 4 = (
  SELECT COUNT(DISTINCT salary)
  FROM employees e2
  WHERE e2.salary > e1.salary
);
```