Answer below SQL questions. create document which shows the query with output and upload to canvas,

**#A. 10 MARKS**

**(Attach all the Catalog SQLs that you write to extract metadata such as table names, column names, constraints)**

1.Details of all tables present in a schema can be found in SYS.ALL\_TABLES.

2.Details of columns and its attributes present in a table can be found in SYS.ALL\_TAB\_COLUMNS.

3.Constraints can be found by querying a table SYS.ALL\_CONSTRAINTS or SYS.ALL\_CONS\_COLUMNS.

Oracle contains Static data dictionary views:

Static data dictionary views change only when a change is made to the data dictionary (for example, when a new table is created or when a user is granted new privileges).

The static data dictionary views are grouped into three categories:

ALL\_ views: Contains data that is accessible to the current user.

DBA\_ views: Contains data about the entire database and only admins are given access to it.

USER\_ views: Contains data that is owned by the current user.

If a user wants to check all tables present under himself:

Command:

Select \* from SYS.USER\_TABLES;

Description:

This will give details of all tables in the database that are owned by the current user.

However, if a database administrator wants to check system level objects:

Command:

Select \* from SYS.DBA\_TABLES;

Description:

This will give details of all tables in the database. But Admin privilege is needed.

Because we have access to sys.all\_\* metadata tables, we will be using only sys.all\_\* system tables for this assignment purpose.

1. List all tables present in system.

SELECT \* FROM SYS.ALL\_TABLES; or can be filtered by using where clause on desired column.

Table

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Table

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1. List tables and their columns.

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1. List constraints on tables:

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Type of constraint definition:

* C (check constraint on a table)
* P (primary key)
* U (unique key)
* R (referential integrity)
* V (with check option, on a view)
* O (with read only, on a view)

**#B.**Answer below questions using the tables available NORTHWIND schema.

**Note**: All questions equal marks unless specified

1)  
How many shippers are available:

SELECT COUNT(SHIPPER\_ID) FROM NORTHWIND.SHIPPERS;

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2)  
Display FirstName, LastName, and HireDate of all the employees with the Title of Sales Representative in **usa.**

select FIRSTNAME,LASTNAME--,HIREDATE,TITLE,COUNTRY from NORTHWIND.EMPLOYEES where TITLE = 'Sales Representative' and upper(COUNTRY) = 'USA';

Graphical user interface, text, application, email

Description automatically generated

3)Show all the orders placed by employee Steven Buchanan

select \* from NORTHWIND.ORDERS where EMPLOYEE\_ID in (select EMPLOYEE\_ID From NORTHWIND.EMPLOYEES where lower(FIRSTNAME) = 'steven' and lower(lastname) = 'buchanan');

Graphical user interface, application

Description automatically generated

4) show the SupplierID, ContactName, and ContactTitle for those Suppliers whose ContactTitle is not Marketing Manager;

select SUPPLIER\_ID, CONTACT\_NAME, CONTACT\_TITLE from NORTHWIND.SUPPLIERS where lower(CONTACT\_TITLE) <> 'marketing manager';

Graphical user interface, text, application

Description automatically generated

5)  
Display  ProductID and ProductName for those products where the ProductName includes the string 'queso'.

select PRODUCT\_ID,PRODUCT\_NAME from NORTHWIND.PRODUCTS where lower(PRODUCT\_NAME) like '%queso%';

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6)  
List all OrderID,CustomerID, and ShipCountry for the orders shipped to France, Belgium and Latin American country  
**Hint**: Brazil Mexico Argentina Venezuela are latin american countries

select ORDER\_ID, CUSTOMER\_ID, case

when lower(SHIP\_COUNTRY) = 'france' THEN 'FRANCE'

when lower(SHIP\_COUNTRY) = 'belgium' then 'Belgium'

when lower(SHIP\_COUNTRY) in ('brazil','mexico', 'argentina', 'venezuela') then 'Latin American'

end as SHIP\_COUNTRY

from NORTHWIND.ORDERS

where lower(SHIP\_COUNTRY) in ('france','belgium','brazil','mexico', 'argentina', 'venezuela')

group by ORDER\_ID, CUSTOMER\_ID, SHIP\_COUNTRY

Graphical user interface, application

Description automatically generated

7)  
Display all the employees in the Employees table, show the FirstName, LastName, Title, and BirthDate. Order the results by BirthDate, so we have the oldest employees first.

select FirstName, LastName, Title, BirthDate from NORTHWIND.EMPLOYEES

order by BirthDate;

Graphical user interface, text, application, email

Description automatically generated

8)  
Display all the employees in the Employees table, show the FirstName, LastName, Title, and BirthDate. Order the results by BirthDate, so we have the Employees in order of BirthDate.  
**Note**: You should ignore time during sorting.

select FIRSTNAME, LASTNAME, TITLE, BIRTHDATE

from NORTHWIND.EMPLOYEES

order by BIRTHDATE;

Graphical user interface, text, application

Description automatically generated

9)  
Using OrderDetails table, calculateTotalPrice, that multiplies unit price and quantity and once done show the OrderID,   
ProductID, UnitPrice, and Quantity Order by OrderID and ProductID

select Order\_ID, (UNIT\_PRICE \* QUANTITY) as TotalPrice From NORTHWIND.ORDER\_DETAILS

Graphical user interface, text, application

Description automatically generated

10)  
How many customers are there?  
Ans should be 91

select count(distinct CUSTOMER\_ID) From NORTHWIND.CUSTOMERS;

11)  
When was the first order placed (Date and time in AM/PM format)?

select TO\_CHAR(ORDER\_DATE, 'DD-MON-RR HH.MI.SS PM') From NORTHWIND.ORDERS

where rownum = 1

order by ORDER\_DATE asc

Graphical user interface, text, application

Description automatically generated

12)  
Show list of all countries and total counrt where there are customers for this company  
**Note**: You can write 2 seprate queries to get the answer

select Country, count(\*) from NORTHWIND.Customers group by Country;

select Country,COMPANY\_NAME , count(\*) from NORTHWIND.Customers group by Country,COMPANY\_NAME ;

Graphical user interface, application

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Graphical user interface, text

Description automatically generated

13)  
list all the different values in the Customers table for ContactTitles additionally include count for each ContactTitle

select Contact\_title , count(\*) from NORTHWIND.CUSTOMERS group by Contact\_title;

Graphical user interface, application

Description automatically generated

14)  
Display for each product, the associated Supplier.   
Show the ProductID, ProductName, and the CompanyName of the Supplier.   
Finally Sort data by ProductID.

select a.Product\_ID, a.PRODUCT\_NAME , b.COMPANY\_NAME

from NORTHWIND.PRODUCTS a inner join NORTHWIND.SUPPLIERS b

on a.SUPPLIER\_ID = b.SUPPLIER\_ID

order by Product\_ID;

Graphical user interface, text, application, email

Description automatically generated

15)  
Generate list of the Orders that were made, including the Shipper that was used. Show the OrderID, OrderDate (date only), and CompanyName of the Shipper, and sort by OrderID.  
**Note**: show only those records with an OrderID less than 10300.

select a.ORDER\_ID, a.ORDER\_DATE, b.COMPANY\_NAME

from NORTHWIND.ORDERS a inner join NORTHWIND.SHIPPERS b

on a.ship\_via = b.shipper\_ID

where a.ORDER\_ID < 10300

order by a.ORDER\_ID;

Graphical user interface, text, application, email

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16)  
Show total products in each category

select category\_ID, count(product\_id)

from NORTHWIND.PRODUCTS

group by category\_ID ;

Table

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17)  
Display total number of customers per Country and City.

select COUNTRY, CITY, COUNT(CUSTOMER\_ID) from NORTHWIND.CUSTOMERS group by COUNTRY, CITY order by COUNTRY

Graphical user interface, application

Description automatically generated

18) **5 Marks question**  
What products are available in inventory that needs to be reordered? Order the results by ProductID  
**Hint**: use UnitsInStock and ReorderLevel, where UnitsInStock is less than the ReorderLevel and ignoring UnitsOnOrder and Discontinued columns

select PRODUCT\_ID, PRODUCT\_NAME from NORTHWIND.PRODUCTS

where Units\_In\_Stock < Reorder\_Level

and Units\_On\_Order = 0

and Discontinued = 'N'

order by PRODUCT\_ID

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19)  
Sales team would like to see list of all customers, sorted by region, alphabetically. However, they want the customers with no region to be at the end of the report and Within the same region, companies should be sorted by CustomerID

select CUSTOMER\_ID, COMPANY\_NAME, REGION

from NORTHWIND.CUSTOMERS

order by REGION, CUSTOMER\_ID

Graphical user interface, text, application, email

Description automatically generated

20)  
Display the three ship countries with the highest average freight charges (overall) in descending order by average freight.   
**Note**: Output should display country name and average freight cost

select \* from (

select SHIP\_COUNTRY, avg(FREIGHT) as MAX\_AVG\_FREIGHT

From NORTHWIND.ORDERS

group by SHIP\_COUNTRY

order by avg(FREIGHT) desc)

where rownum < 4

Graphical user interface, text, application, email

Description automatically generated

21)  
in continueation to question 20, we need orders from the year 2015 onwards

select \* from (

select SHIP\_COUNTRY, avg(FREIGHT) as MAX\_AVG\_FREIGHT

From NORTHWIND.ORDERS

where EXTRACT(YEAR from ORDER\_DATE) >= 2015

group by SHIP\_COUNTRY

order by avg(FREIGHT) desc)

where rownum < 4

22)  
Find the top 3 High freight charges for orders made in year 2015

select \* from (

select FREIGHT , dense\_Rank() over ( order by FREIGHT desc) as Freight\_rank

from NORTHWIND.ORDERS

where EXTRACT(YEAR from ORDER\_DATE) >= 2015 )

where Freight\_rank <4

23)  
Find the top 5 countries with High freight charges for orders made in last 12 months

**Note**: Take the latest order date and from that point navigate back to 12 months

select \* from (

select ORDER\_DATE, SHIP\_COUNTRY , dense\_Rank() over ( order by FREIGHT desc) as Freight\_rank , max(ORDER\_DATE) over() as ORDER\_DATE1

from NORTHWIND.ORDERS

)

where Freight\_rank < 6

and ORDER\_DATE >= add\_months(TRUNC(ORDER\_DATE1, 'month'), -12)

Graphical user interface, application

Description automatically generated

24)  
Display Employee ID, lastname, order id, product name, quantity for all orders sorted by OrderID and Product ID.

select ord.EMPLOYEE\_ID, emp.LASTNAME, ord.ORDER\_ID, prd.PRODUCT\_NAME, ord\_Det.QUANTITY

from

NORTHWIND.ORDER\_DETAILS ord\_Det inner join NORTHWIND.ORDERS ord

on ord\_Det.ORDER\_ID = ord.ORDER\_ID

inner join NORTHWIND.EMPLOYEES emp

on ord.EMPLOYEE\_ID = emp.EMPLOYEE\_ID

inner join NORTHWIND.PRODUCTS prd

on ord\_Det.PRODUCT\_ID = prd.PRODUCT\_ID

order by ord.ORDER\_ID

Graphical user interface

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25)  
List all the customers who never placed any orders

select \* from NORTHWIND.CUSTOMERS

where CUSTOMER\_ID not in (select CUSTOMER\_ID from NORTHWIND.ORDERS)

Graphical user interface, text, application

Description automatically generated

26)  
Find all customer IDs that never placed orders with Employee ID 4.

select CUSTOMER\_ID from NORTHWIND.ORDERS

where EMPLOYEE\_ID <> 4

Graphical user interface

Description automatically generated

27)  
Find customers who made at least 1 order with a total value  (including the discount) equal to $15,000 or more.consider orders made in the year 2016.

select ord.CUSTOMER\_ID , (UNIT\_PRICE\*QUANTITY-DISCOUNT) as Total\_Value

from NORTHWIND.ORDERS ord inner join NORTHWIND.ORDER\_DETAILS ord\_det

on ord.ORDER\_ID = ord\_det.ORDER\_ID

where (UNIT\_PRICE\*QUANTITY-DISCOUNT) > 15000

and extract(year from ORDER\_DATE) = 2016

28)  
List all orders made on the last day of the month. Order the results by employee id and order id

select \* from NORTHWIND.ORDERS

where ORDER\_DATE = LAST\_DAY(ORDER\_DATE)

order by employee\_id , order\_id

29)  
Display top 10 orders with the most line items, in order of total line items.

select ORDER\_ID, prd\_cnt,prd\_cnt\_rank

from (

select ORDER\_ID, prd\_cnt, dense\_Rank() over ( order by prd\_cnt desc) prd\_cnt\_rank

from (

select ORDER\_ID, count(PRODUCT\_ID) prd\_cnt

from NORTHWIND.ORDER\_DETAILS

group by ORDER\_ID

)

)where PRD\_CNT\_RANK < 11

Table

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30) **5 Marks question**  
A sales person Janet Leverling thinks that she accidentally double entered a line item on an order, with a different Product id, but the same quantity. Lucklly She remembers that the quantity was 60 or more. Show all the OrderIDs with line items that match this, in order of Order id.

select a.Order\_ID,a.PRODUCT\_ID, a.QUANTITY

from NORTHWIND.ORDER\_DETAILS a inner join NORTHWIND.ORDER\_DETAILS b

on a.ORDER\_ID = b.ORDER\_ID

and a.QUANTITY= b.QUANTITY

and a.PRODUCT\_ID <> b.PRODUCT\_ID

where a.QUANTITY >= 60

and b.QUANTITY >= 60

ORDER by a.Order\_ID;

Graphical user interface

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