1.

1. Using MS SQL Server, create the tables identified below in the following order. Apply the sql constraints appropriately.

DEPARTMENT Table

(**Dno**, Dept\_Name)

Dept\_Name cannot be null and should start with ‘D’ and the length is 5.

EMPLOYEE Table

(**Emp\_ID**, First\_Name, Last\_Name, Salary, Join\_Date **Dno**)

First\_Name, Last\_Name, Salary cannot be null and the Dno is the foregin key.

EMPLOYEE\_DEPENDANT Table

(**Did**, First\_Name, Last\_Name, **Emp\_ID** )

1. Write the SQL insert command to add your data to each table. (2 records per table. Use your own data)
2. Write a SQL query to get employee First name, Last name, Salary and Dept Name order by “Dept\_Name”.
3. Write a SQL query to update Salary of employees by 10% of the current salary.

2.

a) Create a PL/SQL **Function** to return an Employee table record by inserting Emp\_ID as an input. Print the Employee details by accessing the fields of the returned table record. You can refer the Employee Table in Question 1. (Hint: use **%rowtype** to return a record from the function)

***Note :*** For this you can use user defined variables,functions and types and exceptions. If the given customer is not available display the error massage ’No such customer!’.

b) What are key features of PL SQL in Oracle? List at least 4 features.

3.

1. Explain the Oracle database architecture components given below.
2. Database Buffer Cache
3. Redo Log Buffer
4. PGA and SGA
5. Background/ Server Processes
6. List down 3 key features of Oracle Database.
7. Explain different types of backups that can be used in the recovery process.

4.

1. What is a Distributed Database?
2. Explain the advantages of Distributed Database Architecture over Centralized Architecture.
3. What are the two main types of distributed databases? List and compare the main features.

5.

a) What are the advantages and disadvantages of NoSQL databases? (10 Marks)

1. Write NoSQL commands by using example for below

I. What is the command for select documents in a collection?

II. How to specify eaquality condiction?

III. How to specify where the status equals "B" and quantity is greater than 10?

IV. How to update all documents where quantity is less than 150?

V. How to delete document with one condition? (10 Marks)

6.

**Scenario**: You are designing a database system for a new E-commerce platform that is expected to handle a large volume of transactions and user data. As a database administrator, you need to decide whether to use a SQL (Relational) database or a NoSQL database for this project.

Based on the requirements of the E-commerce platform, propose which type of database (SQL or NoSQL) you would recommend for this project and justify your choice.