Answers the following questions :-

1. **Define ETL and explain its importance in data management.**

**Ans** : ETL [Extract Transform Load] – It has 3 major functions

1. Extracting the data from a particular source.
2. Transforming the data into particular formats necessary structured way.
3. Loading the data onto a specified target.

Using ETL tools helps a lot in data management, as it combines data and does analysis with respect to its format and gives the output based on the insights. Which makes a lot of work in a simple and faster way.

1. **Describe a scenario where ETL could be beneficial in a business setting.**

**Ans** : Using ETL in business could be a very smart way to compress the load work. As it has many functions and capabilities to arrange , analyze the data to get the information what we need.

1. **What challenges might a data analyst face during the transformation phase of ETL and how can they be addressed?**

**Ans :** During Transformation , a data analyst might face some challenges regarding the errors of computing the data , such as some of the missing values , choosing wrong file extension , not correctly mapping one to another ,etc.

Those challenges can be addressed by filling the missing values, implementing data validation using most of the ETL tools , with respect to the file extensions.

1. **Explain the concept of data warehousing and its relationship with ETL processes.**

**Ans :** Data warehouse is a system that aggregates data from different sources into a single, central, consistent data store to support data analysis, data mining, AI and ML.

Whereas, ETL processes helps to make sure that the data is clean ,integrate and structured to store in Data warehouse from multiple sources.

1. **Define a database and a data warehouse.**

**Ans :** Database :

A place where data is been stored.

Data warehouse :

It is a relational database which is deigned for query and analysis rather than transactional processing.

1. **How do the purposes of a database and a data warehouse differ in a business environment?**

**Ans :** In business perspective, data base is not so prominent because it only stores the data , irrespective of order and used for OLTP(Online Transaction Processing).

Whereas, Data warehouse collects the data and stores in an order for some of the analysis and used for OLAP(Online Analytical Processing)

1. **Can you illustrate with an example when you would use a database versus a data warehouse?**

**Ans :** For example, if we consider a retail shop,

Database is used for managing Daily Transactions and Operations such as Sales Transactions, managing the information such as current stock items.

Whereas, Data warehouse is used to improve the Decision Making and getting accurate data . It is helpful analyzing performances of such as Sales Analysis, also extracts meaningfull insights.

1. **List 5 Popular Data Warehouse, ETL Tools and Database.**

**Ans :** Data Warehouse : Big query, PostgreSQL, DB2, Snowflake , Redshift,etc.

ETL Tools : Pentaho , IBM Datastoragsqle, Stitch, Oracle, Talend,etc.

Database: Oracle, MySQL, Microsoft SQL, Microsoft SQL Server, DB2 , PostgreSQL, etc.

1. . **Who is Data Analyst, Business Analyst and Data scientist?**

**Ans :** Data Analyst :

A person who analyses the data precisely and provides needful insights.

Business Analyst:

A person who focuses more on understanding and improving the business processes.

Data Scientist:

A person who uses analytical, programming as well as statistical skills in an advanced way. The person also creates models , algorithms and also predict future .

1. **llustrate with an example how data visualization can assist in business decision-making .**

**Ans : Let us consider a retail shop which uses data visualization for it’s business decision making by using some tools Power BI, Excel ,etc. to create visual representation of the collected data. It also may be used to plot some charts lie bar chart, line chart, pie chart,etc**

**For better allocation marketing and strategic planning sales period.**