

## 1. Define PivotTable. List any three advantages of using PivotTables in Excel.

**Answer:**

- A PivotTable is a data analysis tool in Excel that helps to **summarize, analyze, and reorganize** large datasets.

**Advantages:**

1. Summarizes large datasets quickly.
2. Allows filtering, sorting, and grouping.
3. Supports calculated fields and items for deeper analysis.

## 2. Explain the steps involved in creating a PivotChart from a PivotTable.

**Answer:**

Steps:

1. Select the PivotTable.
2. Go to **Insert → PivotChart**.
3. Choose the chart type (Column, Line, etc.).
4. Click **OK** → PivotChart is created and linked to the PivotTable.

## 3. Differentiate between Calculated Fields and Calculated Items in PivotTables with examples.

**Answer:**

- **Calculated Field** – Uses existing fields across the dataset.

*Example:* Profit Margin = (Sales – Cost) / Sales.

- **Calculated Item** – Performs calculations on items within the same field.

*Example:* New Region = North + South.

**4. What are the different types of grouping in PivotTables? Explain any two with examples.****Answer:**

Types of grouping:

1. **By Date** – Group sales by months/quarters.
2. **By Numeric Ranges** – Group ages into 0–18, 19–30, etc.
3. **By Text** – Group products by first letter.

**5. Write the steps to create a PivotTable showing total sales by region and category.****Answer:**

1. Select dataset → Insert → PivotTable.
2. Drag **Region** → Rows, **Category** → Columns.
3. Drag **Sales Amount** → Values.
4. PivotTable will show total sales by region and category.

**6. State the importance of data cleaning (any three points).****Answer:**

- Ensures accurate analysis and decision-making.
- Enhances data integrity and reliability.
- Saves time and prevents reporting errors.

**7. Explain the types of missing data: MCAR, MAR, MNAR.****Answer:**

1. **MCAR** – Missing completely at random, e.g., accidental skips.

2. **MAR** – Missing at random, depends on observed data, e.g., older patients missing visits.
3. **MNAR** – Missing not at random, depends on unobserved data, e.g., high-income people not disclosing salary.

## 8. Write Excel formulas for handling missing values.

**Answer:**

- a) Identify blank cells → =COUNTBLANK( range )
- b) Mean imputation → =AVERAGE( range )
- c) Mode imputation → =MODE.SNGL( range )
- d) Last Observation Carried Forward → =IF( ISBLANK(A2) , A1 , A2 )

## 9. Deletion vs. Imputation methods for missing values.

**Answer:**

- **Deletion:** Removes missing data.  
*Advantage:* Simple; *Disadvantage:* Loss of data.
- **Imputation:** Replaces missing values.  
*Advantage:* Preserves dataset size; *Disadvantage:* May reduce accuracy.

## 10. Case Study – BookMart Sales Analysis.

**Answer:**

- **Seasonal Trends:** Group dates → months/quarters.
- **Store Performance:** Compare total sales by store.
- **Genre Popularity:** Analyze which genres sell most.
- **Sales Targets:** Use calculated fields (e.g., Target = Sales × 1.1).