

**2025**

**ECONOMICS — HONOURS**

**Paper : SEC-3**

**(Data Analysis and Research Methodology)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer **any ten** questions.

5×10

1. Define simple random sampling and state one advantage of using it over complete enumeration.
2. What is the purpose of Power Query in MS Excel? Name two basic transformations it can perform.
3. Design a hypothetical questionnaire with four questions to study consumer preferences for online shopping. Specify whether each question collects qualitative or quantitative data.
4. A survey collects data on monthly household income (in INR) : 25000, 30000, 28000, 25000, 32000. Create a tabular representation and identify one potential inconsistency in the data.
5. Discuss the importance of including a bibliography in a research report. Provide an example of a bibliography entry for a book.
6. Describe the steps to connect a CSV file to Power Query in Excel. Explain one transformation you can apply to clean the data.
7. Explain how Power BI supports data exploration. Provide two examples of interactive features in Power BI dashboards.
8. Explain how to create a bar chart in Power BI to visualize sales data by quarter. List the steps involved.
9. In Power Query, a dataset has a column with sales dates in mixed formats (e.g., DD/MM/YYYY and MM-DD-YYYY). Describe the steps to standardize the date format to DD-MM-YYYY.
10. Using a random number table, explain how to select a stratified random sample of 6 households from two strata (urban : 20 households, rural : 30 households). Provide a small hypothetical random number table for demonstration.
11. A digital survey dataset contains errors in temperature entries (e.g., some in Celsius, others in Fahrenheit). Propose a detailed process to validate and convert all values to Celsius.

**Please Turn Over**

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- 12.** A dataset shows monthly sales (in INR) : 50000, 55000, 52000, 58000, 51000. Calculate the mean and standard deviation. Interpret the standard deviation in terms of sales variability.
  - 13.** Describe how to combine two Excel datasets (e.g., sales and customer feedback) in Power Query. Explain one potential challenge and its solution.
  - 14.** In Power BI, design a dashboard with a line chart and a pie chart to analyze trends and regional contributions. Explain the steps to create the line chart.
  - 15.** A Power Query dataset has inconsistent text entries (e.g., "New Delhi", "new delhi", "Delhi"). Describe the steps to standardize text to a consistent format and explain its impact on Power BI analysis.
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