Syllabus: Research Methodology  
PhD Entrance Examination  
TERI School of Advanced Studies

1. **Introduction to Research:**
   - Meaning and importance of Research
   - Types of Research
   - Research Design and Stages
   - Selection and Formulation of Research Problem, Objective(s) and Hypothesis
   - Developing Research Plan – Exploration, Description, Diagnosis, Experimentation, Determining Experimental and Sample Design.

2. **Data Collection:**
   - Sources of Data – Primary and Secondary
   - Types of Data – Categorical (nominal and ordinal), Numerical (discrete, continuous, ratio and interval)
   - Methods of Data Collection: Survey, Interviews (in-depth or Key Informant interviews), Focus Group Discussion (FGD), Observation, Records or Experimental Observations.

3. **Data Processing and Analysis:**
   - Statistical Graphics – Histograms, Frequency Polygon, Ogive, Dotplots, StempLOTS, Bar Graphs, Pareto Charts, Pie Charts, Scatterplots, Boxplots
   - Descriptive Analysis – Frequency Distributions, Measures of Central Tendency, Measures of Variation/Dispersion, Skewness and Kurtosis, Measures of Relative Standing
   - Qualitative Approaches Including Grounded Theory, Ethnography, Narrative Inquiry, Phenomenology and Case-Study.


5. **Research Ethics:** Research Ethics Committees/Institutional Review Board – Roles and Importance
   - Intellectual Property rights – Commercialization, Royalty
   - Reproduction of Published Material – Citation and Acknowledgement, Plagiarism.