Paper-II: RESEARCH METHODOLOGY

Maximum Marks: 100 (Written: 70 and Sessional: 30)

Unit-I: Basic concept

Meaning, objective, motivation, types of research, research approaches, significance of research, research methods and methodology, research process, criteria for good research, outcomes of research.

Unit-II: Research Problems

Definition, selection of problems, necessity of defining the problems, techniques involved in defining a research problem, different ways of literature surveys, different methods of data collection, methods of analysis and interpretation of findings.

Unit-III: Research Design

Meaning and need of research design, development of research plan, research components in the paper, writing of references / bibliography, scientific writing and effective presentation.

Unit-IV: Area of Research

Fundamental concepts of various research domains of Mathematics and Statistics; Operations research / Finsler geometry / Special functions / Bio-mathematics / Sampling and Econometrics, review of literature in the relevant field. / Fluid dynamics / mathematical modeling / Theory of Fuzzy sets / Theory of Relativity / Inference / Design of experiments /

Unit-V: Computing Tools

Mathematical and Statistical computing tools; SPSS / MATLAB / C^{++} / MAPLE / SCIENTIFIC WORK PLACE etc.

REFERENCES

1. Dawson, Catherine, 2002, *Practical Research Methods,* New Delhi,UBS Publishers' distributors.
2. Kothari, C.R.,1985, *Research Methodology-Methods and Techniques,* New Delhi, Wiley Eastern Limited.
3. Kumar, Ranjit, 2005, *Research Methodology-A Step-by-Step Guide for Beginners,* (2nd.ed), Singapore, Pearson Education.