

**LOGIC AND SCIENTIFIC METHOD**

Unit 1:

Definition, Meaning, Nature and Scope of Logic – The Divisions of Logic – Nature of Science and Scientific Methods.

Unit 2:

Words – Terms – Propositions – Four-fold Classification of Propositions

Unit 3:

Inferences – Immediate Inferences – Opposition of Propositions - Eduction – Mediate Inferences – Categorical Syllogism - Hypothetical Syllogism – Disjunctive Syllogism – Fallacies.

Unit 4:

Induction – Postulates of Induction – Types of Induction – Enumerative and Scientific Methods – Analogy – Sound and Unsound Analogy. Hypothesis – Importance of Hypotheses – Verification and Proof of Hypothesis – Conditions of a Good Hypothesis – Hypothesis Distinguished from Fact, Theory and Law – False and Barren Hypothesis – Stages of Scientific Induction.

Unit 5:

Observation and Experiment – The Material Grounds of Induction – Advantages of Observation and Experiment – Fallacies of Observation.

**BOOKS FOR REFERENCE:**

1. Basanthani, K.T., Introduction to Logic,
2. Bholanath Roy, Textbook of Deductive Logic, University of Calcutta, Calcutta, 1945.
3. Bholanath Roy, Textbook of Inductive Logic, University of Calcutta, Calcutta, 1945.
4. Cohen and Nagel, An Introduction to Logic and Scientific Method, Allied Publishers, Delhi, 1972.
5. Ganapathy, T.N., An Invitation to Logic, K.C. Desikan & Co., Booksellers and Publishers, Madras, 1973.
6. Morris R. Cohen and Ernest Nagel, An Introduction to Logic and Scientific Methods, Routledge and Kegan Paul Ltd., London, 1934.
7. Nandita Bandyopadhyay, The Concept of Logical Fallacies, Sri Hyamapada Battacharya, Calcutta, 1977.