[Written according to new syllabus with Simple and Clear Expositions of the Ideas and Designs of Irving M. Copi : Introduction To Logic]

HAND BOOK OF LOGIC

For All Universities of Indian :
Degree Course : Pass and Honours

Acklowledgement

Translated with Permission of Macmillan Publishing Co. Inc. from Introduction to Logic by Irving M. Copi.

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New Syllabus (C.U.) 2010-11 and onwards

Paper IV

Western Logic 100 Marks

Half - I (50 Marks)

Unit - I

A. Logic and Arguments, Deductive & Inductive Arguments, Truth and Validity. Categorical propositions and classes : quality, quantity and distribution of terms. Translating categorical propositions into standard form.

B. Immediate inferences : Conversion, Obversion and contraposition, Traditional square of opposition and Immediate Inferences based there on; Existential Import, symbolism and Diagrams for categorical propositions.

C. Categorical syllogism : Standard Form categorical syllogism; The formal nature of syllogistic Argument. Rules and Fallacies. General Rules; To test syllogistic Arguments for validity (by applying general rules to syllogism); To solve problems and prove theorems concerning syllogism.

D. Boolean Interpretation of categorical propositions; Review of the Traditional Laws of Logic concerning immediate inference and syllogism; Venn Diagram Technique for Testing Syllogisms, Hypothetical and Disjunctive Syllogisms, Enthymeme, The Dilemma.

Unit - II

A. Induction : Argument by Analogy, Appraising Analogical Arguments, Refutation by Logical Analogy.

B. Causal Connections : Cause and Effect, the meaning of "Cause" induction by simple Emmeration; Mills Method of Experimental Inquiry, Mills Method of Agreement, Method of Difference, Joint Method of Agreement and Difference, Method of Residues, Method of concomitant Variations, Criticism of Mills Methods, Vindication of Mills Methods.

C. Science and Hypothesis : Explanations; Scientific and Unscientific, Evaluating Scientific Explanations, The pattern of scientific Investigation, crucial Experiments and Adhoc Hypothesis.

D. Probability : Alternative conception of Probability; The Probability calculas; Joint Occurrences; Alternative Occurrences.

Half - II (50 Marks)

Unit - III

A. Symbolic Logic : The Value of Special Symbols; Truth - Functions, Symbols for Negation, Conjunction, Disjunction, Conditional Statements and Material Implication; Argument Forms and Arguments. Statement Forms and Statements, material equivalence and Logical Equivalence.

B. Tautologous, Contradictory and Contingent Statement Forms; The Paradoxes of Material Implication; The Three Laws of Thought.

C. Testing Argument Form and Argument : Statement-Form and Statement for validity by

a) The Method of Truth-table.

b) The Method of Resolution (Fellswoop & Full Sweep) [dot notation excluded].

D. The Method of Deduction : Formal Proof of Validity : Difference between implicational Rules and the Rules of Replacement; Construction of Formal Proof of Validity by using nineteen rules, Proof of invalidity by assignment of truth values.

Unit - IV

A. Quantification Theory : Need for Quantification Theory. Singular prepositions, Quantification; Translating Traditional Subject predicate proposition into the logical notation of propositional function and quantifieres.

B. Quantification Rules and Proving Validity, Proving Invalidity for arguments involving quantifieres.