

**TYBA Paper 8: Semester V**

**Paper Title: Formal Logic**

**Code: UAPHI-A505 (subject to change as per University coding)**

**No. of lectures: 60**

**Total Marks: 100**

**Unit 1 Introduction to Logic (15 lects)**

Definitions of logic, logic as a formal science, propositions and sentences

Arguments: premises and conclusions, recognizing arguments, types of arguments: inductive and deductive (theory and exercise); Kinds of agreement and disagreement

Three basic functions of language; Definitions: types: stipulative, lexical, précising, theoretical and persuasive; identifying definitions from passages

**Unit 2 Deductions (15 lects)**

Traditional classification of propositions (quality, quantity and distribution)

Square of opposition: contradictories, contraries, subcontraries and subaltern (theory and exercises)

Deductions (theory and exercises)

**Unit 3 Syllogisms (15 lects)**

Nature of syllogism: major, minor and middle terms; types of syllogism: categorical, disjunctive and conditional

Mood and Figure: special rules of the four Figures and 15 valid Moods; Testing validity of syllogisms by rules of syllogistic reasoning

Venn diagram technique for testing syllogisms

**Unit 4 Non-formal Fallacies (15 lects)**

To define & identify fallacies in passages

Difference between formal and non-formal fallacies

Exercises on Non-formal Fallacies:

(i) Division (ii) Composition (iii) Accident (iv) Converse fallacy of accident (v) Begging the question (vi) False cause (vii) Complex question (viii) Ignoratio elenchi (6 fallacies: ad baculum, ad hominem, ad misericordiam, ad populum, ad verecundiam and ad ignoratiam) (ix) Red Herring (x) Slippery slope (xi) Straw man fallacy

**Books Recommended for the Course:**

*Symbolic Logic*. Irving Copi, 5th Edition (Collier Macmillan Publishers, London, Macmillan Publishing Co., Inc., New York).

*Introduction to Logic*. Irving Copi and Others. 14<sup>th</sup> edition

*Metalogic : An – Introduction to the Metathery of Standard First order Logic*. Geoffrey Hunter (Macmillan & Co., London and Basingatoke).

*The Elements of Logic*. Robert Lata and Alexander Macbeath (Macmillan & Co. Ltd.)

*Logic of truth-functions- An Introduction to Symbolic Logic*. Ramprasad Das Firma K.L Mokhopadhyay, Calcutta, 1964

*The Elements of Formal Logic*. Hughes G.E and Londey D.G, G. N Mansukhani, (B.I Publications, Bombay,1965)

**TYBA Paper 8: Semester VI**

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**No. of lectures: 60**

**Total Marks: 100**

**Unit 1 Modern Logic (15 lects)**

Drawbacks of traditional logic and advantages of modern logic

Modern classification of propositions: simple and compound; truth conditions of compound propositions

Shorter Truth Table method

**Unit 2 Methods of Deduction (Formal Proof of Validity) (15 lects)**

Formal Proof of Validity as a Decision Procedure

Justification and Construction

Conditional Proof (CP) and Indirect Proof (IP)

**Unit 3: Relational Logic (15 lects)**

Theory: Types of Relation (Transitive, Intransitive, NonTransitive; Symmetry, A- Symmetry, Non-Symmetry; Reflexive, Irreflexive, Non-reflexive).

Symbolization of Relational Propositions

Testing the validity of Relational Arguments.

**Unit 4: Quantification (Predicate Calculus) (15 lects)**

Concepts: individual constant, individual variable, propositional function, existential quantifier, universal quantifier, instantiation, generalization, relation between universal and existential quantification

Symbolising propositions (singular and general) by Quantification

Proving Validity by UG, EG, UI and EI.

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*Logic of truth-functions- An Introduction to Symbolic Logic.* Ramprasad Das Firma K.L Mokhopadhyay, Calcutta, 1964

*The Elements of Formal Logic.* Hughes G.E and Londey D.G, G. N Mansukhani, (B.I Publications, Bombay,1965)

*Introduction to Symbolic Logic,* Basson and O'Connor Glencoe, Ill., Free Press

*An Introduction to Logic,* David Mitchell. Hutchinson University Library, London. 1962 (pp. 136-154)

*An Introductory Text-book of Logic,* Sydney Herbert Meclone. William Blackwood & Sons Ltd.m Edinburgh & London. 1950 (pp. 199-211)