Swami Ramanand Teerth Marathwada University, Nanded

Bachelor of Arts

Faculty of Social Sciences

LOGIC

Syllabus of B.A. Third Year

(Yearly Pattern)

With Effect from June 2010

LOGIC & METHODOLOGY OF SCIENCE

Syllabus

B.A. Third Year

With effect from June 2010

Sr.No.	Paper No.	Tile of the Paper	External Marks	Internal Marks
01	V	Advanced Modern Logic	80	20
02	VI	Methodology of Nature and Social Sciences	80	20
03	VII	Indian Logic	80	20

Note: 80 Marks for external assessment and 20 marks for internal assement.

B.A. Third Year
LOGIC
Syllabus
With Effect from June 2010
Paper IV – Methodology of Nature and Social Sciences

80 Marks

1) **Conception of Science as a rational enquiry**

   a) Nature of empirical science

   b) Characteristics of empirical science: Testable, Objective, systematic and Quantifiable.

   c) Classification of Sciences.

       i) Natural ad social sciences

       ii) Descriptive and normative

       iii) Empirical and formal

       iv) Pure and applied.

   d) Goals of empirical science: Explanation, Prediction and control.

2) **Scientific Method**

   a) Meaning and Definition of scientific method.

   b) Characterisitics of scientific method: Objectivity, Reliability, Validity, Verifiability, Definiteness Generality and Predictability.

   c) Application of Scientific method in natural and social sciences.

   d) Stages of scientific research: Formulation of Problem, formation of Hypothesis, Research design, Collection of data, classification and analysis of data, Generalisation and report.

3) **Laws and Explanation**

   a) Various uses of the expression 'Law'

   b) Nature and classification of laws of nature.

   c) Types of secondary laws.

d)   Nature and types of explanation.

e)   Distinction between popular and scientific explanation.

f)   Goal of science: Explanation or description.

4)   Introductory Issues in Social Sciences

a)   Nature and subject matter of social sciences.

b)   Distinction between natural and social sciences.

c)   Logical structure of social science.

d)   Objectives: Understanding and explanation, Laws and theories.

e)   Basic concepts and approaches: Event and action, Human action and social action.

5)   Methods of data Collection in Social Science Research

a)   Observation: Participant and non participant

b)   Questionnaire schedule

c)   Interview method

6)   Method of Sampling Technique

a)   Meaning and definition of sampling.

b)   Characteristics of Sampling technique.

c)   Merits and demerits of sampling procedure.

d)   Various types of sampling.

e)   Use of sampling procedure in social research.

f)   Problems in sampling technique.

7)   Method of Social Survey

a)   Meaning and nature of social survey.

b)   Characteristics of social survey

c)   Types of social survey

d)   Merits and demerits of social survey

8)   Some issues in social sciences

a)   Nature of laws in social science

b)   Problems of objectivity in social science.

c) Values and value commitment in social science

d) Unit of method thesis.

e) Importance of computer in social research.

BOOKS FOR READING AND REFERENCE

English

1. Introduction to Logic: I.M. Copi and Cotten.

2. Modern introduction to Logic: L.S. Stebbing.

3. Text book of Logic: A.Wolf.

4. Introduction to Logc and Scientific Method: Cotton and Nagel.

5. The structure of science: Ernst Nagel.

6. Philosophy of Science: Carl Hempel.

7. Introduction to Philosophy of science: R. Carnap.

8. Structure of social Science: M. Lessnoff.

9. Philosophy of Social Science : Richard Rudner.

10. Methodology of Social Research: Goode and Hat.

11. Methodology and techniques of social research: DrWilkinson and Dr. Bhandarkar.

12. Philosophy of Nature Science: C. Hempel.

13. Survey Research in Social Science: Mac Closky.

14. Fundamentals of Statistics: Elhance D.N.

मराठी

१५. सुगम तर्कशास्त्र आणि वैज्ञानिक पध्दती : प्रा. हुस्याळकर, प्रा. काळे, प्रा.कावळे.

१६. तर्कशास्त्राची मूलतत्त्वे : प्रा. दे.द.वाडेकर व प्रा.ल.ब. हुस्याळकर.

१७. तर्कशास्त्र भाग २ : प्रा.श्रीनिवास दीक्षित.

१८. तर्कशास्त्र आणि वैज्ञानिक पध्दती : प्रा.भा.ग.केतकर.

१९. मराठी तत्वज्ञान महाकोश : संपादक प्रा. दे.द.वाडेकर (खंड १, २ व ३).

२०. सामाजिक संशोधन पध्दती : प्रा. प.ल.भांडारकर.

२१. सामाजिक पाहणी : तत्त्व व पध्दती — सुमित्रा भावे.

२२. सामाजिकशास्त्रे — तोंड ओळख : डॉ.नागोराव कुंभार.

२३. तवज्ञानाचे तत्त्वज्ञान : परामर्श प्रकाशन, पुणे विद्यापीठ.
भाग १ खंड ८ ऑगष्ट १९८६
भाग २ खंड ९ मे १९८७

२४. संपूर्ण तर्कशास्त्र : प्रा.ना.सी.फडके.

२५. संशोधन पध्दतीशास्त्र व तंत्रे : डॉ.प्रदीप आगलावे.

२६. समाजशास्त्रीय संशोधन तत्त्वे आणि पध्दती : प्रा. रा.ना.घोटाळे.

२७. वैज्ञानिक संशोधन पध्दती : डॉ.सुधा काळदाते.

हिंदी
२८. रिसर्च मेथडॉलॉजी : डॉ.शर्मा.
२९. सामाजिक सर्वेक्षण : डॉ. वाजपेयी.
३०. सामाजिक अनुसंधान : डॉ.मुखर्जी.

LOGIC

Syllabus

With Effect from June 2010

Paper V – Advanced Modern Logic

80 Marks

1) **Introductory Predicate Logic**

   a) Need for the study of predicate structure of propositions.

   b) Singular and general propositions: Nature, structure and symbolization.

   c) Exercises on symbolizing general propositions.

   d) Notion of propositional function.

   e) Quantifiers: Nature, types and functions.

   f) Rules of quantification in predicate logic: UI, UG, EI and EG (Preliminary Version only)

2) **Proving Validity of arguments involving quantifiers**

   a) Nature and technique of proving validity of arguments involving quantifiers, using preliminary quantification rules.

   b) Exercises in proving validity by direct, conditional and indirect proof.

3) **Proving invalidity of Arguments Involving Quantifiers**

   a) The basis of demonstration of invalidity of arguments.

   b) Method of demonstrating invalidity of arguments (Through assumptions of increasing universe of discoverse)

   c) Exercises on demonstrating the invalidity of invalid arguments in predicate logic.

4) **Advanced predicate logic**

   a) Singly and multiply general propositions: Nature and symbolization.

b) Exercises on symbolizing multiply general propositions.

c) Free and Bound variable

d) Revised rules of UI, UG, EI and EG.

e) Exercises on proving validity of arguments involving multiply general propositions.

f) Rule of quantifier negation.

5) Proving Logical Truths Involving Quantifiers

a) Examples on proving logical truths involving quantifiers.

6) Relational Logic

a) Relational logic as an extension of predicate logic.

b) Nature, logical structure and kinds of relational proposition.

c) Exercises on symbolizing relational propositions.

d) Properties of dyadic relations.

e) Proving validity of arguments involving relational propositions by direct and conditional proof.

f) Ethymeme: Nature, proving validity of relational enthymic argument.

7) Identity and Definite Propositions

a) Identity as relation.

b) Leibniz's principle of identity.

c) Symbolizing identical propositions.

d) Proving validity of arguments involving identical propositions.

e) Exercises on proving validity of arguments involving identical propositions.

f) Definite description: Nature and symbolization.

8) Elementary Set theory

a) Definitions: Set, Element of set, Sub set, proper Sub set, Null set, Universal set and identity of sets.

b) Modes of specifying a set: Listing and defining

c)   Basic operations on sets: Union, intersection and complementry.

d)   Demorgan's laws in terms of set theory.

e)   Interpreting A, E, I and O forms of propositions in terms of set theory.

BOOKS FOR READING AND REFERENCE

English

1.   Symbolic Logic: I.M. Copi.

2.   Introduction to Logic: I.M. Copi and Cohen.

3.   Elements of Formal Logic: Hughes and Londey.

4.   Elements of Logic : Stephen Barker.

5.   Introduction to symbolic Logic: Basson A.H. and O'connor D.S.

6.   Methods of Logic: Quine W.V.O.

7.   Amodern Introduction to Logic: L.S. Stebbing.

8.   Formal Logic: Its Scope and Limits: Richard Jeffery.

9.   Introduction to Logic: Patric Suppes (Relevant Chapters Only)

10.   Logic by of set theory : Ehler's Henry.

मराठी

११. तर्करेखा भाग २ — डॉ.सुरेंद्र बारलिंगे व डॉ. मो.प्र.मराठे.

१२. आकारिक तर्कशास्त्र — प्रा. मे.पू.रेगे.

१३. सुगक आकारिक तर्कशास्त्र — डॉ. एस.आर.कावळे व डॉ. एल.डी.गोळे.

१४. तर्कविद्या भाग २ — डॉ. बी.आर.जोशी, प्रा. एस.व्हि.कुलकर्णी व प्रा. इ.आर. मठवाले.

१५. सांकेतिक तर्कशास्त्र : प्रा. दि.य.देशपांडे, प्रा. सुनिती नी.देव.

१६. तर्कदीपिका — प्रा. व्हि.व्हि.अकोलकर.

१७. सामाजिक शास्त्रातील संज्ञासिध्दांचा स्पष्टीकरणात्मक कोश : तत्त्वज्ञान व तर्कशास्त्र : संपादक — डॉ. बी.आर. जोशी, सहलेखक प्रा. एस.व्हि. कुलकर्णी.

१८. सुगम तर्कविचार : प्रा. माधवी की, प्रा. इ.आर. मठवाले.

१९. तर्कशास्त्र : प्रा. बी.के. सांवगीकर.

२०. संच विज्ञान : प्रा. म.रा. राईलकर.

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२१. तर्कशास्त्र का परिचय : अनुवादक : प्रा. संगमलाल पांडे व प्रा. गोरखनाथ मिश्र.

२२. प्रतिकात्मक तर्कशास्त्र प्रवेशिका : प्रा. अशोककुमार वर्मा.

B.A. Third Year

LOGIC

Syllabus

With Effect from June 2010

Paper VII – Indian Logic

80 Marks

1) **a Historical Introduction to Indian Logic**

2) **Pramanas**

Perception including Pratyasatti, Inference, Upmana, Sabda, Arthapatti and Anuplabdhi.

3) **Categories (Padarthas)**

Nature and proof of categories.

4) **A Detailed Study of Anumana**

a) Paramarsha, Vyapti, Vyaptigraha, Vyaptigraho, Payas, Nayaya Avayavas, Anumiti, Drashtanta.

b) heory of inference: Purvavat and Sheshvat Anuman, Three laws of implications as the basis of inference, fallacies, Indian and Greek syllogism.

5) **A Study of Language and Symbols**

a) Formalized language and metalanguage.

b) Knowledge and Language.

c) Language: The formal factors: Akanksha, Yogyata, Sannidhi, Tatparya, Saktigraha and Lakshna.

d) The use of symbols in panini's methodology of grammer.

6) **Theory of Classes: Theory of Samanya or Jati.**

7) **Judgements, Propositions and Functions**

a) Metaphysical basis.

b) Varieties of Functions in Nyaya Logic.

    c)   Tanishta_Tadvat_Tadvachinna_Anuyogi and Pratiyogi.

    d)   Sabdabodha

    e)   Propositions and descriptions.

    f)   Types of Propositions.

    g)   A note on Nirupya and Nirupakabhava

    h)   Theory of relations.

8)   **Truth functions, definition and Upadhi**

    a)   Logical connectives: Negation (Not), Conjunction (and), Disjunction (or) , Implication (if-then), Equivalence (Bioconditional)

    b)   Definition (c) Upadhi.

9)   **Theory of negation and meaning in Indian Logic; (including Buddhist)**

    a)   The nature of Nonegistence

    b)   A note on Virah Pratiyogi

10)   **Inductive Elements in Indian Logic**

    a)   Knowledge: Empirical and Probable

    b)   The problem of Vyaptigraphopaya, Bhuyo Darshana, Sahacargraha – Semister – Vyabhicaragraha – Tarka – Doubt about knowledge expressed by carvakas – The Nyaya solution.

    c)   The faculty of knowing Universals.

    d)   Jnana Laksana – Pratyasatti, Analogical Knowledge.

    e)   Upamana

    f)   Elements in causal process – Arambhavada – cause – Different causes.

BOOKS FOR READING AND REFERENCE

English

1.   Navayanyaya system of Logic : Guha D.C.

2. Materials for the study of Navyanyaya: Ingalls D.H.H.

3. Buddhist Logic (Two volumes) (Relevant Parts Only): St Cherbatsky.

4. Elements of Indian Logic: Bhattacharya C.

5. A Modern Introduction Indian Logic: Dr.Barlizgay S.S.

6. Nyaya Siddhanta Muktavali: Vishavanath.

मराठी

७. भारतीय तर्कशास्त्राची रुपरेषा : डॉ.सुरेंद्र बारलिंगे व डॉ. क्रांती प्रभा पांडे.

८. भारतीय तत्त्वज्ञान (संबंधित भाग) : प्रा.श्रीनिवास दीक्षित.

९. भारतीय तत्त्वज्ञानाचा इतिहास (संबंधित भाग): प्रा. पां.दा. चौधरी.

१०. भारतीय दर्शन संग्रह : प्रा. द.वा.जोग.

११. मराठी तत्त्वज्ञान महाकोश खंड १, २ व ३: संपादक प्रा. दे.द. वाडेकर

१२. सामाजिक शास्त्रातील संबा सिध्दांचा स्पष्टीकरणात्मक कोश : तत्त्वज्ञान व तर्कशास्त्र : संपादक डॉ.बी.आर. जोशी, सहलेखक प्रा.एस.व्हि.कुलकर्णी.

हिंदी

१४. नव्य न्याय के पारिभाषिक पदार्थ : डॉ. नलीराम शुक्ल.

१५. जैन धर्म दर्शन : डॉ.मोहनलाल मेहता.

१६. जैन वस्तूस्वातंत्र्यवाद : अल्पना जैन.

१७. समेकित दर्शनिका विमर्श : प्रधान संपादक : सुरेन्द्रसिंह नेगी, संपादक : अंविकादत्त शर्मा.

१८. भारतीय दर्शन : चंद्रधर शर्मा.

१९. भारतीय दर्शन की रुपरेखा : हरेन्द्रप्रसाद सिन्हा.

२०. भारतीय दर्शन : जदूनाथ सिन्हा.