

## TRB B.T. Assistant Exam

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### 1. Paper I: General Knowledge and Education

This paper assesses a candidate's general awareness, reasoning abilities, and knowledge of educational principles.

#### *Syllabus for Paper I:*

- **General Knowledge:**
  - **Current Affairs:** Focus on state, national, and international news (important events, appointments, and milestones in various sectors such as politics, economics, sports, etc.).
  - **Indian History and Culture:** Ancient, medieval, and modern history of India; important national events, movements, and cultural aspects.
  - **Geography:** Physical, political, and economic geography of India and the world.
  - **Indian Polity:** Indian Constitution, political structure, governance, and public administration.
  - **Economy:** Basic economic concepts, national income, economic planning, and economic policies in India.
  - **Science and Technology:** Advances in science and technology; inventions, discoveries, and their impacts.
  - **Books and Authors:** Knowledge of famous books and authors, both Indian and international.
  - **Awards and Honours:** National and international awards in the fields of literature, sports, cinema, etc.
  - **Environment and Ecology:** Basic environmental concepts, climate change, wildlife conservation, and sustainable development.
- **Education:**
  - **Educational Psychology:** Theories of learning, motivation, intelligence, emotional development, and personality.
  - **Pedagogical Theories:** Different teaching methods, educational philosophies (Montessori, Piaget, Vygotsky, etc.).
  - **Curriculum Development:** Curriculum planning and designing, teaching aids, lesson planning, and evaluation techniques.
  - **Inclusive Education:** Teaching students with special needs, learning disabilities, and strategies for inclusive education.
  - **Educational Policies and Acts:** National Education Policy (NEP), Right to Education Act, and other educational reforms and policies.
  - **Educational Management:** Administration, leadership, and management of schools.

## 2. Paper II: Subject-Specific (Content Knowledge)

This paper assesses the candidate's subject knowledge, which is specific to the position for which they are applying (e.g., Mathematics, Physics, Chemistry, Biology, English, Tamil, etc.).

### *Syllabus for Paper II (Subject-Specific)*

The syllabus for Paper II is detailed and focuses on the candidate's chosen teaching subject. Here's a breakdown based on common subjects:

#### **a. Mathematics:**

- **Algebra:** Polynomials, quadratic equations, linear equations, progressions (AP, GP), etc.
- **Geometry:** Plane geometry, coordinate geometry, theorems and proofs, lines, angles, triangles, circles.
- **Trigonometry:** Trigonometric ratios, identities, heights and distances, equations.
- **Calculus:** Limits, continuity, differentiation, integration, differential equations.
- **Statistics and Probability:** Mean, median, mode, standard deviation, probability theory.
- **Linear Algebra:** Matrices, determinants, vector spaces, eigenvalues, and eigenvectors.
- **Set Theory and Logic:** Basic concepts of set theory, relations, functions, logical reasoning.

#### **b. Physics:**

- **Mechanics:** Laws of motion, work, energy, power, rotation, gravitation.
- **Thermodynamics:** Heat, temperature, laws of thermodynamics, entropy.
- **Electromagnetism:** Electrostatics, magnetic fields, laws of electromagnetism, Faraday's Law.
- **Optics:** Reflection, refraction, lenses, optical instruments.
- **Waves and Oscillations:** Simple harmonic motion, wave properties, sound waves.
- **Modern Physics:** Quantum mechanics, atomic structure, radioactivity, nuclear physics.

#### **c. Chemistry:**

- **Physical Chemistry:** Laws of thermodynamics, chemical equilibrium, kinetics, acids and bases, electrochemistry.
- **Inorganic Chemistry:** Periodic table, chemical bonding, coordination compounds, transition metals.
- **Organic Chemistry:** Hydrocarbons, functional groups, reactions and mechanisms, polymers.

- **Analytical Chemistry:** Gravimetric and volumetric analysis, spectroscopy, chromatography.
- **Environmental Chemistry:** Water pollution, air pollution, green chemistry.

**d. Biology:**

- **Cell Biology:** Structure and function of cells, cell division, and cellular processes.
- **Genetics:** Mendelian inheritance, molecular genetics, DNA/RNA structure, gene expression.
- **Ecology:** Ecosystems, food chains, environmental conservation, biodiversity.
- **Human Physiology:** Digestive system, circulatory system, respiratory system, excretory system.
- **Botany:** Plant structure, physiology, reproduction, plant ecology.
- **Zoology:** Animal kingdom, human anatomy, and classification.

**e. English:**

- **Literature:** Study of English literature, including prose, poetry, and drama from different periods (Shakespeare, Victorian poets, Modern literature, etc.).
- **Grammar and Composition:** English grammar, sentence structure, writing skills, essay writing, letter writing, précis writing.
- **Vocabulary and Language Skills:** Synonyms, antonyms, word meanings, idiomatic expressions, and phrasal verbs.
- **Reading Comprehension:** Understanding and interpreting written texts, answering questions based on them.

**f. Tamil:**

- **Literature:** Classical Tamil literature, modern Tamil literature, famous poets and writers.
- **Grammar:** Tamil grammar, syntax, sentence formation, and usage.
- **Poetry and Prose:** Understanding and analysis of Tamil poems, short stories, and essays.
- **Culture:** Tamil culture, traditions, festivals, and historical significance.

**g. Social Science:**

- **History:** Indian history (Ancient, Medieval, Modern), World History, important events, movements, and personalities.
- **Geography:** Physical geography, Indian geography, world geography, map skills.
- **Economics:** Basic economic principles, Indian economy, international trade, national income.
- **Political Science:** Indian political system, Constitution, governance, political parties, electoral system.

- **Sociology:** Society, culture, social issues, and problems in India.

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