BPSC TRE 4.0 Bihar PGT Physics Exam Guide

Made by TotheScience

Comprehensive Guide Based on PYQs, NCERT & SCERT Class 11–12 Curriculum

Exam Pattern

The BPSC TRE 4.0 PGT Physics examination is a single objective-type paper consisting of 150 multiple-choice questions (MCQs) to be completed in **2 hours and 30 minutes**. There is **no negative marking**.

The paper is divided into three parts as shown below:

Section	Questions	Marks	Notes
Part 1: Language (Qualifying)	30	30	English + Hindi/Urdu/Bengali (Minimum 30%
Part 2: Subject (Physics)	80	80	Main scoring section – Class 11–12 lev
Part 3: General Studies	40	40	Elementary Maths, GA, Science, History, G
Total	**150**	**150**	No negative marking

Selection Process

The selection process for the PGT Physics post follows these steps:

1. **Written Examination:** Candidates appear for the single objective paper described above.
2. **Qualifying Language Paper:** Candidates must secure minimum 30% marks in Part 1; otherwise, the remaining paper may not be evaluated.
3. **Merit List Preparation:** Final merit list is prepared based on marks obtained in Part 2 (Subject) and Part 3 (General Studies) only.
4. **Document Verification:** Selected candidates are called to verify certificates such as B.Ed and STET.
5. **Final Selection:** Appointments are made based on merit, with no interview round for teacher posts.

Detailed Syllabus

The syllabus is primarily based on the **NCERT and SCERT Class 11 and 12 curriculum**. While BPSC does not release a specific topic-wise syllabus, the following outline is derived from Previous Year Questions (PYQs) and exam trends.

Class 11 Physics Syllabus

1. **Physical World and Measurement**
   - Units of measurement, SI units, and the scope of physics
   - Dimensional analysis, significant figures, and errors in measurement
2. **Kinematics**
   - **Motion in a Straight Line:** Position-time graphs, speed, and velocity
   - **Motion in a Plane:** Vectors, projectile motion, and relative velocity
3. **Laws of Motion**
   - Newtons laws of motion, inertia, impulse, and conservation of linear momentum
   - Friction and the dynamics of circular motion
4. **Work, Energy, and Power**
   - Work-energy theorem, kinetic and potential energy, and power
   - Conservation of mechanical energy, conservative forces, and elastic/inelastic collisions
5. **Motion of System of Particles and Rigid Body**
   - Centre of mass, torque, and angular momentum
   - Rotational motion, moment of inertia, and parallel/perpendicular axes theorems
6. **Gravitation**
   - Universal law of gravitation and Keplers laws
   - Acceleration due to gravity, gravitational potential, orbital velocity, and escape velocity
7. **Properties of Bulk Matter (Solids & Fluids)**
   - **Solids:** Stress-strain, elasticity, Hookes law, and Youngs modulus
   - **Fluids:** Pressure, Pascals law, Archimedes principle, Bernoullis equation, viscosity, and surface tension
   - **Thermal Properties:** Thermal expansion, heat transfer, and Newtons law of cooling
8. **Thermodynamics**
   - Zeroth, first, and second laws of thermodynamics

- Carnot engine/cycle and specific heats

9. **Behaviour of Perfect Gas and Kinetic Theory**
   - Ideal gas equation, RMS speed, and degrees of freedom
   - Equipartition of energy, mean free path, and Avogadros number
10. **Oscillations and Waves**
    - Simple harmonic motion (SHM), pendulum, and wave motion
    - Superposition, Doppler effect, resonance, and standing waves

Class 12 Physics Syllabus

1. **Electrostatics**
   - Coulombs law, electric field, and Gausss theorem
   - Electric potential, capacitors, and dielectrics
2. **Current Electricity**
   - Ohms law, Kirchhoffs laws, and drift velocity
   - Wheatstone bridge, potentiometer, electrical power, and series/parallel circuits
3. **Magnetic Effects of Current and Magnetism**
   - Biot-Savart law, Amperes law, and Lorentz force
   - Solenoid, galvanometer, magnetic dipole, magnetic materials, and Earths magnetic field
4. **Electromagnetic Induction and Alternating Currents**
   - Faradays law, Lenzs law, self and mutual inductance
   - AC circuits, resonance, and transformers
5. **Electromagnetic Waves**
   - Properties of EM waves, electromagnetic spectrum, and displacement current
6. **Optics**
   - **Ray Optics:** Reflection, refraction, lenses, prisms, microscope, and telescope
   - **Wave Optics:** Interference, diffraction, and polarization
7. **Dual Nature of Matter and Radiation**
   - Photoelectric effect, Compton effect, and de Broglie waves
   - Davisson-Germer experiment and matter waves
8. **Atoms and Nuclei**
   - Rutherford and Bohr models, hydrogen spectrum
   - Radioactive decay, nuclear fission and fusion, and mass-energy relation

9. Electronic Devices

- Semiconductors, diodes (including Zener diode as a voltage regulator), transistors, and logic gates

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Best Wishes for Your Success!