RUVENL-JE SYLLABUS

General Knowledge and General Studies	• **Current Affairs**: National and international news, sports, awards, etc. • **General Knowledge**: History, geography, culture, and polity of India and Rajasthan. • **General Science**: Basic concepts in physics, chemistry, and biology.
Engineering Subjects	• **Circuit Theory**: Ohm's Law, Kirchhoff's Laws, AC/DC circuits, Thevenin's and Norton's Theorems, etc. • **Electromagnetic Theory**: Maxwell's equations, magnetic circuits, electric fields, etc. • **Electrical Machines**: Transformers, DC machines, AC machines, induction motors, synchronous machines, etc. • **Power Systems**: Generation, transmission, distribution, power factor correction, protection systems. • **Control Systems**: Basic control theory, transfer functions, stability analysis, control system components. • **Digital Electronics**: Logic gates, flip-flops, counters, registers, etc. • **Power Electronics**: Rectifiers, inverters, choppers, and related devices.
Civil Engineering	• **Strength of Materials**: Stress, strain, deformation, shear and bending, etc. • **Structural Analysis**: Trusses, beams, frames, methods of analysis, etc. • **Construction Materials**: Properties and uses of materials like concrete, steel, etc. • **Soil Mechanics and Foundations**: Soil properties, foundation types, bearing capacity, etc. • **Surveying**: Types of surveys, leveling, theodolite, total stations, etc. • **Environmental Engineering**: Water supply, waste management, pollution control, etc.

Mechanical Engineering	• **Thermodynamics**: Laws of thermodynamics, heat engines, refrigeration cycles, etc. • **Fluid Mechanics**: Fluid properties, fluid statics and dynamics, Bernoulli's equation, etc. • **Manufacturing Processes**: Casting, welding, machining, forming processes, etc. • **Mechanical Design**: Stress, strain, mechanical components, gear systems, etc. • **Engineering Mechanics**: Dynamics, statics, kinematics, and kinetics of particles and rigid bodies.
Numerical Ability	**Mathematics**: Algebra, calculus, statistics, and geometry relevant to engineering problems.
General English (if applicable)	**Grammar and Vocabulary**: Sentence correction, comprehension, and usage of English in technical contexts.