



Entrance Exam Objectives Qualifying to FSS

Mathematics

- Algebraic expressions
- Equations of lines
- Proportionality
- Systems of equations in 2 unknowns
- Thales' theorem + All geometry requirements from the intermediate cycle (Triangles, quadrilaterals, etc.)
- Vectors
- Trigonometry

Chemistry

Atomic Structure:

1. Write the Symbol of the Nuclide - Atomic Number (Z) and Mass Number (A).
2. Determine the Composition of the Atom - Protons, Electrons, Neutrons.
3. Calculate the charge - Q(Nucleus), Q(Cloud), Q(Atom)
4. Write Electron Arrangements for the first 20 elements - K, L, M, N
5. Classify elements in the Periodic table - Group, Column, Period, Row.

Chemical Bonding:

1. Understand Chemical Stability - Duet and Octet Rules for Elements, Lewis Dot Symbols.
2. Explain Covalent Bonding - Definition, occurrence, formation
3. Explain Ionic Bonding - Definition, occurrence, formation

Redox Processes:

1. Define the term Redox - Oxidation and Reduction.
2. Identify the Oxidizing and Reducing Agents - Oxidant and Reductant.
3. Classify metals based on increasing tendency to lose electrons.
4. Defining Electrochemical Cells - Types, applications.
5. Identify the anode and the cathode.
6. Writing half reactions and deducing the overall reaction.
7. Explain the phenomena at each electrode - Mass of strip, concentration of ions, movement of electrons, movement of the current.
8. Explain the role of the Salt Bridge - Definition, mode of action, movement of ions

Physics

- Resistors
- Direct and alternating voltages
- Electric power and Energy (Joule's effect)
- Mechanical Actions
- Equilibrium of a body
- Archimedes' Upthrust

