

Pre-Content/content Post-Content	Learning Outcome/Objectives	
	General	Specific
<u>Pre-Content</u> Motivating questions related to the matter, atom, sub-atomic particles and atomic theory. <u>Content</u> Sub-atomic Particles, Atomic Models , Developments Leading to the Bohr's Model of Atom , Bohr's Model for Hydrogen Atom , Quantum Mechanical Model of the Atom , Quantum Mechanical Model of Atom <u>Post-content</u> Electronic configuration of atoms helped in understanding their various physical and chemical properties. Also helped in understanding relation of element to other.	Students will be able to ✓ <u>Recall</u> about the discovery of electron, proton and neutron and also various atomic models; ✓ <u>Understand</u> the nature of electromagnetic radiation and relation with Bohr's model. ✓ <u>Define</u> an atomic orbital in terms of Quantum mechanical model. ✓ <u>Apply</u> quantum mechanical model in writing electronic configuration of elements. ✓ <u>Foster</u> respect for environment by developing understanding about these processes as both has daily life application. ✓ <u>Imbibe</u> logical reasoning	Students will be able to ✓ <u>Explain</u> about the discovery of electron, proton and neutron and their characteristics ✓ <u>Describe</u> the cathode ray experiment; ✓ <u>Describe</u> Thomson, Rutherford and Bohr atomic model ✓ <u>Illustrate</u> drawbacks of Rutherford's experiment ✓ <u>Understand</u> nature of electromagnetic radiation and their characteristics and Planck's quantum theory ✓ <u>Explain</u> Black-Body radiation and Photoelectric effect ✓ <u>Relate</u> photoelectric effect with threshold frequency and kinetic energy of electrons ✓ <u>Define</u> types of spectra- Emission, line Absorption and continuous

Home Work /Assignments

NCERT back exercise is given as homework.

Assignment sheet is also given

Questions taken in the class were also asked to solve.

Teacher's Activity	Student's Activity	Teacher's Observation And Remedial
Students will be asked to recall their previous knowledge in the interactive session. Based on which the new concept will be discussed. Discovery of electron, proton, neutron and nucleus will be discussed. Different theories related to atomic model will be discussed. Problems related to atomic number and atomic mass will be given to solve during class. Rutherford's drawbacks will be asked Planck's theory will be explained with the help of electromagnetic radiation. i.e. $E = h\nu$ Thus the phenomenon of Black Body and Photoelectric effect will be explained. Difference between different types of spectra will be explained. An activity to show different colours by different metal salts will be arranged in the lab.	Students recall their knowledge about structure of atom. They will make notes about the discovery electron, proton, neutron and nucleus of atom. They will find out electrons, protons and neutrons from given atomic number and atomic mass. They will draw Rutherford's experiment and will explain its observation and drawbacks. They will make a note of new concept and thus will understand the equation for the kinetic energy of the ejected electron $h\nu = h\nu_0 + \frac{1}{2}m_e v^2$.They will observe the blackbody radiation and photoelectric effect in ICR They will observe the hydrogen spectra in ICR They will perform the given activity in which they will observe different colors of different metal ions. Na salts- Yellow K salts – Purple Ba salts – Apple Green Sr salts – Brick red Ca salts - Crimson red Cu salts- Prussian blue	Students could recall their knowledge about structure of atom. By doing various examples, it was observed that they developed the better understanding for the concept taught. They were able to solve the problems taken during different sessions. They were able to solve the numerical related to $E = h\nu$ They were able to develop better understanding for blackbody radiation and photoelectric effect interference and diffraction pattern as they visually observed it. They were able to develop better understanding related to atomic spectra of hydrogen. They enjoyed performing activity and thus could relate the concept of spectra.

Teaching Aids : Activeinspire,

Methodology/Innovative Methods: Discussion, Recall, Explanation, Question-Answer method, problem solving

Interdisciplinary Links: Physics, Maths,

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<u>Content</u> Sub-atomic Particles, Atomic Models , Developments Leading to the Bohr's Model of Atom , Bohr's Model for Hydrogen Atom , Quantum Mechanical Model of the Atom , Quantum Mechanical Model of Atom <u>Post-content</u> Electronic configuration of atoms helped in understanding their various physical and chemical properties. Also helped in understanding relation of element to other.	Students will be able to ✓ <u>Define</u> an atomic orbital in terms of Quantum mechanical model. ✓ <u>Apply</u> quantum mechanical model in writing electronic configuration of elements.	Students will be able to ✓ <u>Describe</u> Bohr's model for Hydrogen atom and its spectra ✓ <u>Explain</u> the limitation of Bohr's model ✓ <u>Understand</u> the important features of the quantum mechanical model ✓ <u>Define</u> an atomic orbital in terms of quantum numbers ✓ <u>Draw</u> the shapes of s, p, d and f orbitals ✓ <u>State</u> aufbau principle, Pauli exclusion principle and Hund's rule of maximum multiplicity ✓ <u>Write</u> the electronic configuration of all the atoms

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Assignment sheet is also given

Questions taken in the class were also asked to solve.

Teacher's Activity	Student's Activity	Teacher's Observation And Remedial
Spectral lines for Hydrogen atom will also be explained using Bohr's model through ICR Quantum mechanical model of atom will be explained and with its help an atomic orbital in terms of quantum numbers will also be explained. The shapes of orbitals will be drawn and shown in ICR to check electrons probability. Filling of orbitals with electrons will be explained using aufbau principle, Pauli exclusion principle and Hund's rule of maximum multiplicity. Electronic configuration of atoms will also be explained	They will draw 2-D shapes of the orbitals. They will learn filling of different orbitals for configuration. They will write the different theories about filling of electrons in various subshells Students will write configuration of atoms. They will solve the NCERT questions. And will also take up the assignment of the chapter.	They observed the Quantum mechanical model of atom in ICR They observed and appreciated the 3-D model of orbitals in ICR Students took interest in answering the questions taken during the sessions Students took interest in solving problems. They were able to answer the MCQ questions. They were able to solve the questions of NCERT and examples taken in the class. They could understand the shapes of orbitals and were able to draw them. They could write the electronic configuration of atoms with atomic number 1-30. They could practice by doing assignment and were able to raise their doubts during the revision session

Teaching Aids: Activeinspire, ICR

Methodology/Innovative Methods: Discussion, Recall, Explanation, Question-Answer method, problem solving

Interdisciplinary Links: Physics, Maths,

