
❖ Problems

- Q 1. Discuss the fundamental concept of the effect of temperature on the reaction-rate with special reference to Maxwell-Boltzmann distribution of energies.
- Q 2. Derive Arrhenius equation for the rate of reactions. How it can be used to determine the activation energy?
- Q 3. Deduce the rate expression for the first order opposed by first-order reactions. How it can be used to yield the value of backward reaction too?
- Q 4. Derive and discuss the rate law for second-order opposed by second order.
- Q 5. What are the consecutive reactions? Discuss the condition required to apply the steady-state approximation to a typical consecutive reaction.
- Q 6. Define concurrent or parallel reactions. Derive the rate law for the first-order case.
- Q 7. Discuss the collision of the theory bimolecular reaction when the colliding particles are dissimilar.
- Q 8. What are unimolecular reactions? How they are treated in the collision framework?
- Q 9. Discuss the limitations of collision theory and the incorporation of the steric factor?
- Q 10. Derive the rate law in the activated complex framework. How it can be used to determine the entropy of activation?
- Q 11. What is the single-sphere model of ionic reactions? How is it different from the double sphere model?
- Q 12. Discuss the influence of ionic strength on the rate of ionic reactions of the third order.
- Q 13. Give five points of difference between the collision and activated complex theory.

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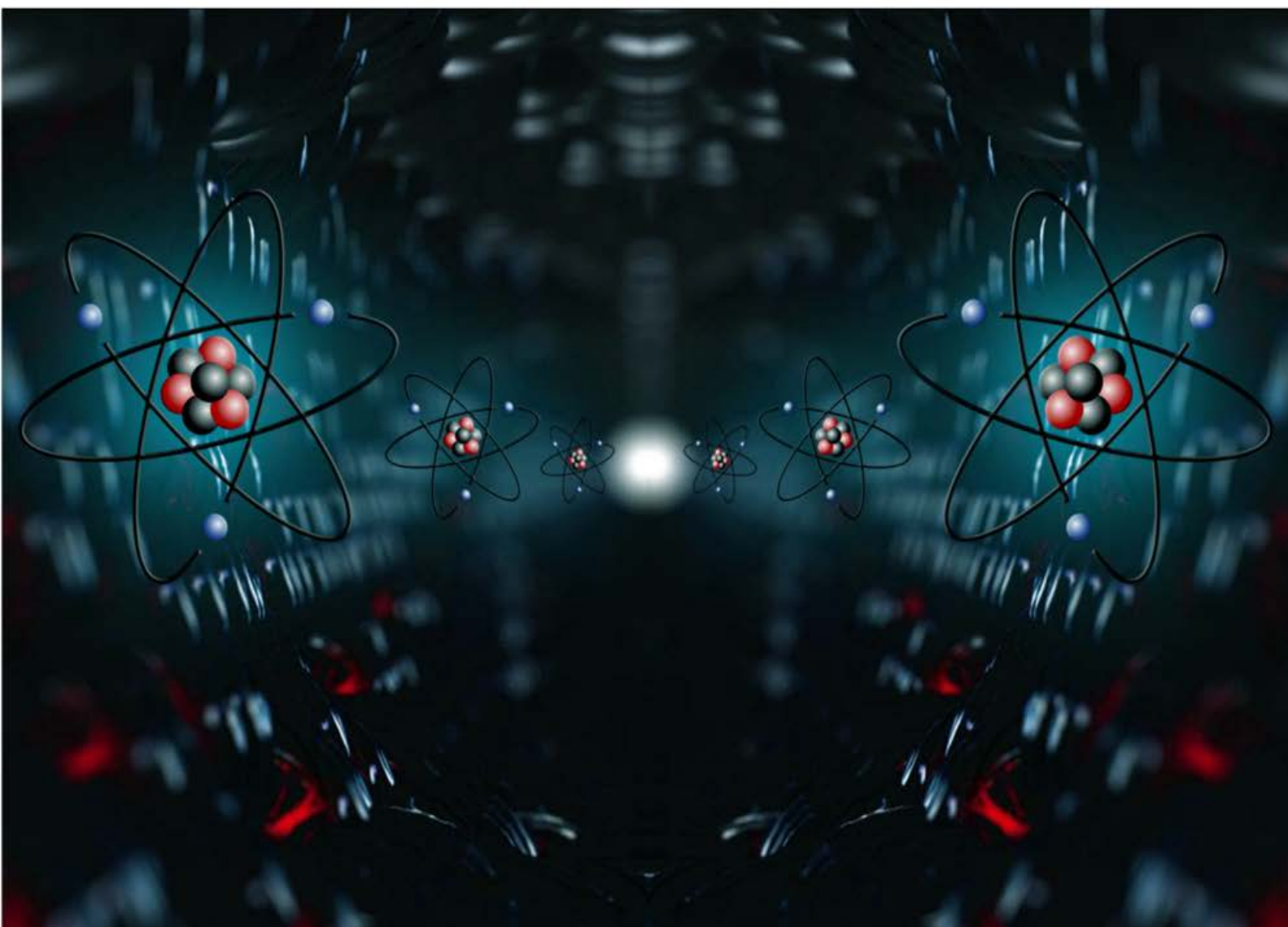
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Volume I

MANDEEP DALAL



First Edition

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