

Very Short Answers Important Questions for Exams.

B.Sc. VIth Sem, Physics

Atomic and Molecular Spectroscopy

1. Write a short notes on emission and absorption spectra.
2. What is Bohr magneton? calculate its value.
3. What is Larmor's theorem?
4. What is space quantization?
5. What are penetrating and non-penetrating orbits?
6. Why is only principal series observed in the absorption spectra while all the series may be observed in the emission spectra of alkali atoms?
7. State the quantum numbers associated with classical orbital motion of an electron.
8. Calculate the Lande's g -factor for S -electron.
9. Determine the possible terms of a one-electron atom corresponding to $n=2$.
10. What are equivalent and non-equivalent electrons?
11. Define Lande interval rule.
12. Do $2^3S_{1/2}$ and $2^3P_{1/2}$ states of the hydrogen atom have the same energy?
13. What is the vector model of an atom?
14. What is spin-orbit interaction?
15. What is Raman effect?

Distinguish between weak field starb effect and strong field starb effect.

7. What is Zero point energy of a molecule.

18. Calculate the Lande's g factor in the state $3F_{7/2}$.

19. Give the applications of Raman effect.

20. Why do molecules show band spectra rather than the line spectra?