

1. State the law of Thermodynamics.  
State Kepler's laws of planetary motion.
2. Explain the phenomenon of surface tension on the basis of molecular theory.
3. Explain what Doppler Effect is in sound and state its applications.
4. State the Law of radioactive decay
5. What is critical velocity? Obtain an expression for critical velocity of an orbiting satellite.  
On what factors does it depend?
6. Derive Laplace's law for spherical membrane of bubble due to surface tension.
7. What is Transformer? Show its Construction and explain it with the help of a suitable diagram and working.
8. What is electromagnetic induction?  
What do you mean by centripetal force?
9. Explain Wave propagation--Ground, Sky, & Space.
10. What are forced vibrations and resonance? Show that only odd harmonics are present in an air column vibrating in a pipe closed at one end.
11. State and prove theorem of parallel axes about moment of inertia.
12. Explain Experimental Study of Photoelectric effect along with a suitable diagram.
13. Prove that root mean square velocity of gas molecule is directly proportional to the square of its absolute temperature.
14. What is interference of light? With the help of neat ray diagrams, describe how the distance between two virtual sources in biprism experiment is measured.
15. What is diffraction of light? Explain its types.
16. Explain Extrinsic & Intrinsic Semiconductors – P & N-type
17. What is a rectifier? With a neat circuit diagram, explain working of P – N Junction diode as a full wave rectifier.

18. State and prove Gauss' Theorem in Electrostatics.
19. Derive an expression for excess pressure inside a drop of liquid.
20. Explain de Broglie Hypothesis--Different formulas.
21. Explain the construction and working of Nicol prism.
22. Define Magnetisation & Magnetic
23. Explain Dielectrics & Polarization along with suitable diagrams.
24. With the help of a neat diagram, describe the construction and working of Van de Graff generator.
25. Define practical simple pendulum.
26. Draw a labeled diagram of a receiver for the detection of amplitude modulated wave.