

## GTU PHYSICS

### SPECIALLY SEM 1

#### First Session: Must Prepare

Theory Questions (7 marks each):

1. Superconductor Properties GUARANTEED!
2. Energy Band Diagrams  
(Conductors/Semiconductors/Insulators)
3. P-N Junction Diode (Forward/Reverse Bias)
4. Type-I vs Type-II Superconductors
5. Meissner Effect
6. Einstein's Coefficients (A & B)
7. He-Ne Laser

Short Questions (3-4 marks):

8. N-type & P-type Semiconductors
9. Critical Temperature, Field, Current
10. Carrier Concentration Formulas
11. Band Gap Energy

## **Second Session: Very Important**

12. Ruby Laser
13. Schrödinger Wave Equation
14. De Broglie Matter Waves
15. Heisenberg Uncertainty Principle
16. Planck's Black Body Radiation
17. Nanomaterials (Top-down/Bottom-up)
18. Ball Milling Method
19. PVD Method
20. Laser Properties (Monochromaticity, Coherence)
21. Population Inversion
22. Zener Diode

## **45+ marks ke liye aapko yeh bhi padhna hoga:**

### **Unit 1 - Properties of Matter**

- Stress-Strain, Hooke's law
- Young's modulus
- Torsional Pendulum

### **Unit 2 - Waves & Acoustics**

- SHM, Damped vibrations
- Resonance
- Ultrasonic waves

### **Unit 3 - Optics**

- Interference (Young's double slit, Newton's rings)
- Diffraction (Fresnel & Fraunhofer)
- Michelson Interferometer