

ANURAG Engineering College

(An Autonomous Institution)

I B.Tech II Semester Supplementary Examinations, June/July - 2024

**ENGINEERING PHYSICS – II
(COMMON TO ALL BRANCHES)****Time: 3 Hours****Max.Marks:75****Section – A (Short Answer type questions)****(25 Marks)****Answer All Questions**

	Course Outcome	B.T Level	Marks
1. What is de-Broglie Hypothesis.	CO1	L1	2M
2. Calculate de-Broglie velocity of electron accelerated under 54 V potential.	CO1	L2	3M
3. Define Electrical Conductivity and Ohm's Law	CO2	L1	2M
4. Define Bloch theorem.	CO2	L1	3M
5. Define fermi level in intrinsic semiconductor.	CO3	L1	2M
6. Explain P-N junction formation.	CO3	L2	3M
7. Define population inversion.	CO4	L1	2M
8. Write applications of LASER.	CO4	L2	3M
9. Define quantum confinement.	CO5	L1	2M
10. Write any two applications of nano materials?	CO5	L2	3M

Section B (Essay Questions)**Answer all questions, each question carries equal marks.****(5 X 10M = 50M)**

11. A) Describe and explain Davisson- Germer experiment to prove Wave Nature of matter particles.	CO1	L2	10M
OR			
B) Derive Schrodinger time independent equation.	CO1	L2	10M
12. A) Derive Fermi-Dirac distribution.	CO2	L3	10M
OR			
B) Define and explain Kronig-Penney model and explain its advantages in quantum mechanics.	CO2	L2	10M
13. A) Derive carrier concentration of intrinsic carrier concentration.	CO3	L3	10M
OR			
B) Describe different types of optical fibres by giving the refractive index profile. Write the sensor applications of optical fibres.	CO3	L2	8+2M
14. A) Explain the properties of lasers and derive Einstein coefficients relations.	CO4	L2	10M
OR			
B) With the help of suitable diagrams, explain the principle, construction and working of Ruby laser. Write the applications of lasers in medicine	CO4	L2	10M
15. A) Explain any two fabrication methods of nano materials.	CO5	L2	10M
OR			
B) Explain construction and working of XRD and SEM	CO5	L3	10M