



G H Raison College of Engineering and Management, Pune
 (An Empowered Autonomous Institute affiliated to Savitribai Phule, Pune University, NAAC Accredited "A+" Grade)

F. Y. B. Tech. (All)

(TERM- II)

CAE II - SUMMER 2025 (2023 Pattern)

Subject : Engineering Physics (23UBSL1204)

(Time: - 01 Hour)

(Max. Marks: 20)

Instructions to the students:

- i) All questions are compulsory. ii) Neat diagrams must be drawn wherever necessary.
 iii) Figures to the right indicate full marks. iv) Use of scientific calculator is allowed
 v) Assume suitable data, if necessary.

Q.No	Question	Marks	CO	BL
Q1.(a)	Enlist the different characteristics of LASER. Differentiate between spontaneous emission and stimulated emission	[5]	CO3	L2
OR				
(b)	i) Explain the process of recording of hologram. ii) Why LASER beam is used in holography?	[5]	CO3	L2
(c)	Explain the following terms (1) Metastable state (2) Population Inversion. (3) Roles of an optical resonator.	[5]	CO3	L2
OR				
(d)	Explain the construction and working of a He-Ne laser.	[5]	CO3	L2
Q 2.(a)	i) Classify the solid materials on the basis of energy band theory. ii) Calculate the number of acceptors to be added to a germanium sample to obtain the resistivity of 20 Ω cm. Given: $\mu_h = 1700 \text{ cm}^2/\text{V} - \text{s}$	[5]	CO4	L2
OR				
(b)	Draw Energy band diagram for P-N junction diode under following conditions: (i) Forward biased (ii) Reverse Biased	[5]	CO4	L2
(c)	Obtain an expression of Hall voltage and Hall coefficient.	[5]	CO4	L3
OR				
(d)	Derive the expression for the conductivity of semiconductor. Also write the expressions of conductivities for intrinsic and extrinsic semiconductors.	[5]	CO4	L3

- BL - Bloom's Taxonomy Levels (1- Remember, 2- Understand, 3 - Apply, 4 - Analyze, 5 - Evaluate, 6 - Create)
- CO- Course Outcomes