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MCT
MANJARA CHARITABLE TRUST
RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI
Department of Applied Sciences & Humanities

INTERNAL ASSESMENT (IA) - I

Date: 14/10/2025

Max. Marks: 15 **Duration: 45 minutes**
Class: FE SEM-I
Name of the Course: Applied Physics (BCS102)
Branch: All

Instructions:
1. Question 1 (a & b) is compulsory for 6 Marks
2. From Question 2 (Solve any one)
3. From Question 3 (Solve any one)
4. Figures to the right of the question indicate full marks.
5. Assume the suitable data wherever necessary.
6. Illustrate your answers using neat diagrams wherever necessary.

Questions	Max. Marks	Bloom's Taxonomy Level	Course Outcomes
Q1. a What is laser? Explain how laser light is differing from ordinary light?	3	2	CO1
Q1. b What is mode of propagation? Distinguish between single mode & multimode propagation?	3	1	CO2
Q2. A Draw the labeled diagram of He-Ne laser with energy level diagram? Comment on its efficiency? What is the role of 'He' ions? Give its applications?	5	2	CO1
OR			
Q2. A What is numerical aperture and acceptance angle of optical fiber? Derive its expression for step index optical fiber?	5	3	CO2
Q3. A What is thin film? Explain the formation of colors in a thin film of transparent material illuminated by sunlight?	4	3	CO3
OR			
Q3. A The refractive indices of core is 1.45 and that of cladding is 1.40. Calculate the numerical aperture and acceptance angle of an optical fiber?	4	2	CO2