SET - 1 | **GR 14** | CODE: GR14A1006

I B. Tech II Semester Regular Examinations, June, 2015
Physics for Engineers
(Common to CE, ME & BT)

Time: 3 hours **Max Marks: 70**

PART – A

Answer ALL questions. All questions carry equal marks

*****

10 * 2 Marks = 20 Marks

1). a	Find the Miller indices of a plane having intercepts a, 3b, 2c along crystallographic axes x, y, z.	**[2]**
b	Describe any four Crystal Systems.	**[2]**
c	Explain Frenkel and Schottky defects.	**[2]**
d	Explain the characteristics of Lasers.	**[2]**
e	Write a note on Piezoelectricity.	**[2]**
f	What are Soft and Hard Magnetic Materials?	**[2]**
g	Explain the following: (i) Meta stable state (ii) Population inversion	**[2]**
h	Explain attenuation in Optical Fibers.	**[2]**
i	Briefly explain (i) Nano materials (ii) Surface to Volume Ratio	**[2]**
j	Discuss any two applications of Nano materials.	**[2]**

PART – B

Answer any FIVE questions. All questions carry equal marks

*****

5 * 10 Marks = 50 Marks

2.	a) Show that FCC Crystals are closely packed than BCC and SC crystals by working out the packing factors.	**[5]**
	b) Derive an expression for concentration of Vacancies at any given temperature.	**[5]**
3.	a) What are the factors affecting Architectural Acoustics and explain the remedies.	**[5]**
	b) Discuss different types of Ultrasonic Production Systems.	**[5]**
4.	a) Derive an expression for Internal Fields in Solids.	**[6]**
	b) Explain Hysterisis curve on the basis of Domain theory of Ferromagnetism.	**[4]**
5.	a) Derive the relation between Einstein's Coefficients.	**[6]**
	b) explain Optical Fiber Communication Link with block diagram.	**[4]**
6.	a) Describe any three processes by which Nano materials are fabricated.	**[6]**
	b) Explain the Scanning Electron Microscopy.	**[4]**
7.	a) Write a note on Edge and Screw dislocations and explain the significance of Burger's Vector.	**[5]**
	b) Explain the principle of Optical Fibre Communication and write a note on Attenuation.	**[5]**
8.	a) Discuss different types of Polarizations in Dielectrics.	**[5]**
	b) Derive an expression for Acceptance Angle and Numerical Aperture of an Optical Fiber.	**[5]**

*****