



I B. Tech II Semester Supplementary Examinations, Nov/Dec - 2019 ENGINEERING PHYSICS

(Com. to CE,ME,CSE,PCE,IT,Chem E, Aero E, Auto E,Min E,Pet E, Metal E & Textile Engg) Time: 3 hours Max. Marks: 70

Note: 1. Question paper consists of two parts (Part-A and Part-B)
2. Answering the question in Part-A is Compulsory
3. Answer any THREE Questions from Part-B

•

PART –A

1.	a)	Explain phenomenon of double refraction.	(3M)
	b)	State the Bragg's law of X-ray diffraction.	(3M)
	c)	What are type I and type II super conductors? Explain.	(4M)
	d)	A hall with volume 6000 m^3 has reverberation time 1.2 sec. Find the total absorption in the hall.	(4M)
	e)	Explain the significance of wave function.	(4M)
	f)	Explain the principle of LED.	(4M)
PART -B			
2.	a)	Explain the procedure to obtain the radius of curvature of given plano-convex lens using Newton's rings experimental setup.	(8M)
	b)	Explain electronic transport mechanism in photoconductors and solar cells.	(8M)
3.	a)	Explain principle, working and construction of a Ruby laser.	(8M)
	b)	Draw E-K curves for an electron in periodic potential and explain how it leads to formation of energy bands in solids.	(8M)
4.	a)	Define electronic polarization. Derive an expression for electronic polarizability.	(8M)
	b)	State and explain basic laws of electromagnetism in their differential form.	(8M)
5.	a)	Derive Sabine's formula of reverberation.	(8M)
	b)	Explain Meissner effect. Classify superconductors with neat diagrams.	(8M)
6.	a)	Discuss the assumptions of classical free electron theory. Deduce the mathematical expression for electrical conductivity on the basis of classical free electron theory.	(8M)
	b)	Prove that FCC is closely packed when compared to BCC crystals.	(8M)
7.	a)	Derive an expression for the concentration of electrons in an intrinsic semiconductor.	(8M)
	b)	Define resolving power of a diffraction grating. Derive an expression for the same.	(8M)

||"|"||"||"|| www.manaresults.co.in