LORDSINSTITUTEOFENGINEERINGANDTECHNOLOGY

(UGC AUTONOMOUS)

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Course Code: U23PH101

B.E, I- PRE-FINAL EXAM

ENGINEERING PHYSICS

(Common for CSE/CSD/CIVIL/MECH)

Time: 3 *Hours* *Max. Marks:* 60

Instructions to the Students:

- **Question No. 1 is compulsory**
- **Answer any 4 questions from Q.No.2 –Q. No7**

1.	a.	Classify the pointdefects.	[2]	CO1	BTL1
	b.	Find the numerical aperture of an optical fiber whose refractive index of core and cladding are 1.55 and 1.50 respectively.	[2]	CO2	BTL1
	c.	Write down the various applications of LED.	[2]	CO3	BTL1
	d.	Explain high Tc super conductors.	[2]	CO4	BTL2
	e.	Define space-charge polarization with neat diagram.	[2]	CO5	BTL2
	f.	Write any two reasons to show super conductors are dielectric materials.	[2]	CO4	BTL1
2.	a.	Deduce an expression for inter planar spacing for cubic crystalsystems.	[6]	CO1	BTL3
	b.	Derive an expression for concentration of Schottky defects in the case of ionic crystals.	[6]	CO1	BTL3
3.	a.	Distinguish between spontaneous and stimulate demissions.	[6]	CO2	BTL2
	b.	Obtain an expression for the Numerical Aperture of an opticalfiber.	[6]	CO2	BTL2
4.	a.	Derive an expression for the energy values for aparticlein 1-D box.	[6]	CO3	BTL3
	b.	Explain the formation of p-n junction diode along withits I-V characteristics.	[6]	CO3	BTL2
5.	a.	Classify magnetic materials into dia, para and ferro magnetic materials.	[6]	CO4	BTL2
	b.	Elaborate BCS theory to explain super conductivity.	[6]	CO4	BTL2
6.	a.	Derive an expression for ionic polarizability.	[6]	CO5	BTL3
	b.	Illustrate Top-down Ball milling approach for the preparation of nanomaterials.	[6]	CO5	BTL2
7.	a.	What are Matter waves? Write properties of matter waves. Explain the physical significance of wave function.	[6]	CO4	BTL2
	b.	Classify the materials into conductors, semiconductors and insulators based on the formation of energy bands and write any four properties for each.	[6]	CO4	BTL2