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DEPARTMENT OF SCIENCES, IV SEMESTER M.Sc. (Physics) END SEMESTER EXAMINATIONS, APRIL 2023

CONDENSED MATTER PHYSICS - II [PHY 6011]

(CHOICE BASED CREDIT SYSTEM - 2020)

Dura	tion: 3 Hours	Date: 28-04-2023			50	0
Note:	Answer ALL questions.		Marks	со	BL	
1A	Derive an expression for lo material using Lorentz metho	5	1	3		
1B	Explain Weiss theory of ferror	nagnetism.	3	2	2	
1C	Describe the classification of	ferroelectrics.	2	1	2	
2A	Explain hard and soft ma operating frequency required generates a magnetic field gyromagnetic ratio $\gamma = 2.675$	4	2	3		
2B	Explain Ginzburg-Landau (GL derive the first Ginzburg-Land	4	3	3		
2C	If all the Carbon atoms of a produce a polarization 1.32 > the center of negative cloud the nucleus. The density of atomic weight is 12.	diamond are polarized alike, and $< 10^{-5}$ C/m ² , calculate the shift in of 6 electrons on each atom from f Carbon is 3500 kg/m ³ and its	2	1	3	
3A	Show that the superconducting state is more ordered than the normal state based on the change in their entropy.			3	2	
3B	Explain the structural theories of glass formation.			4	2	
4A	Write an overview of ceramic their structure and properties	cs and composites with respect to s.	5	4	2	
4B	What are polymers? Classify them based on their origin, structure, morphology and thermal properties.		5	4	2	
5A	What are lyotropic liquid crys	tals ? Explain	3	4	2	
5B	Compute the number-average degree of polymerization for polypropylene $(C_3H_6)_n$, given that the number average molecular weight is 1,000,000 g/mol. Molecular weight of C is 12.01 g/mol and H is 1.008 g/mol.		2	4	3	
5C	What is thermoluminescence glow curve?	and how is it used to generate a	5	5	2	