

Su	bject Code: R10203/R10	Set No - 1
I B. Tech II Semester Supplementary Examinations April/May - 2017 ENGINEERING PHYSICS-II		
Tir	(Common to All Branches) ne: 3 hours	Max. Marks: 75
	Answer any FIVE Questions	
	All Questions carry equal marks	
1.	(a) Apply Schrodinger's wave equation to a particle in one dimensional box and eigen values and eigen functions.	d obtain the
	(b) Write short notes on Classical bits and Qu bits.	[10+5]
2.	(a)On the basis of classical free electron theory, derive an expression for electric conductivity.	ical
	(b) Write the expression for Fermi distribution function and explain with suitab	le diagram,
	discuss its variation with temperature.	[10+5]
3.	(a) Classify solids on the basis of band theory of solids.(b) Explain the concept of effective mass of an electron.	[10+5]
4.	(a) Explain the domain theory of ferromagnetism. Using that theory, explain the phenome	
	of hysteresis in ferromagnetic materials.	[10] 5]
	(b) Differentiate a soft magnetic material from a nard magnetic material.	[10+5]
5.	(a) What is Meissner effect? Prove that all the superconductors are perfect dian superconducting state.	nagnets in the
	(b) Briefly explain i) SQUIDS ii) BCS theory.	[7+8]
6.	(a) Explain electronic polarization in atoms and obtain an expression for electro	onic
	polarizability in terms of the radius of atom.	
	(b) Explain dielectric breakdown and loss in dielectric materials.	[10+5]
7.	(a) Explain the terms conduction band and valence band of an intrinsic semicor with a diagram.	nductor
	(b)Derive an expression for density of electrons in conduction band.	[5+10]
8.	(a) How do nanomaterials differ from bulk materials? Explain the preparation of by chemical vapour deposition method and describe the importan nanomaterials.	of nanomaterials t properties of
	(b) Discuss any five applications of nanomaterials.	[10+5]

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