DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

First Year B. Tech. (ALL COURSES) Semester-II
Supplementary Examination (Old course)

Subject: Engineering Physics-II

3 h	our		Date: 15/5/	13-	Maximum Mark:	70				
Instr	uctions to th	e students:			والمرابعة					
1.			lsory and carries 2 marks each.	s 10 marks where	eas Question No. 2 to	•				
2.	Attempt an	y 5 Questions	from Question	No. 2 to 7.						
					vherever necessary.					
	Necessary data is given in the respective questions. If such data is not given, it means that the knowledge of the part is part of examination.									
		t or paramete mention it cle		missing, you ma	ay appropriately assume	e ans				
Que.1	Select an a	ppropriate o	ption for each	of the following:		(10				
			er of BCC Struct	ture is						
	a) 6	b) 8	c) 12	d) 4						
2.		(112) and (22 to each other		ar to each other	c) intensity at acute ang	le.				
	X-rays can a) Magnet	be deflected lic fields	by b) Electric fields	c) both	d) none					
4.	Diamagnetia) large, ne	c susceptibilic	ty is. b) small, positi	ve c) sn	all, negative					
5.	The unit of a) A/m		d intensity is -I/m	c) Wb/m ²						
	aj mil			C) VV D/III						
6.	At any temperature at the second at the seco	perature T > (b) ∞	K and E=E _F the c) 1	Fermi distribution d) 0.5	on function becomes					
	The magneta a) 0	tization of a s b) H	uperconductor is c) 1	s d) - H		•				
8	Paramagnet	tic susceptibil	ity varies as							
	a) T	b) T ²	c) 1/T	d) 1/T ²						
9.	Dielectric le a) d.c. volt		nen the dielectrice) a.c. voltage	e is subjected to c) both	d) none					
1.0				adding impurity	of valency					
	a) 3	b) 4	c) 5	d) 6						

a) State and prove Mosley's law. What is its importance? (6) What is packing density? Find the packing density for SC, BCC and FCC lattice. (6) Derive relation between lattice constant of cubic crystal and density of crystal material. (6) Q. 3 Attempt the following. (a) Derive an expression for magnetic dipole moment of an atom. What is Bohr Magneton and find its value. (b) On the basis of dipole moment discuss the different types of magnetic materials. Write the general formula for ferrites and Garnets. (6) Q. 4 Attempt the following. (a) Derive an expression for resistivity of conducting materials in terms of relaxation time of electron. (b) State and explain Meissner effect. Explain type—I and Type—II superconductors. (6) Q. 5 Attempt the following. (a) What is Hall effect? Derive an expression for Hall coefficient of semiconducting material. (b) Derive an expression for conductivity of Intrinsic and Extrinsic semiconductors. (c) Q. 6 Attempt the following. (a) Explain with diagrams different types of polarization in dielectric. (b) What is dielectric breakdown? Derive an expression for loss factor and loss tangent. (c) Q. 7 Attempt the following. (d) Q. 7 Attempt the following. (e) Write Maxwell equations in integral and differential form and give its physical significance. (f) What is electromagnetic wave? Find the velocity of electromagnetic wave in free space.	Q. 2 A	ttempt any two of the following.		
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