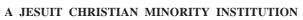


ST. LAWRENCE HIGH SCHOOL





01.7.20

SOLUTION TO WORK SHEET 26

Subject	:	PHYSICS
Bubject	٠	

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CLASS : XII Chapter : Magnetic properties of materials				Тор	Topic : μ , μ_r ; Dia, Para and Ferro magnetic material, comparison, magnetisation vector, χ , $\mu_0 = (I + \chi)$				
Mult	iple Choice Question	:				1 × 15 = 15			
1.	Which one of the f	following is ferror	nagnetic?						
	(a) Aluminium	(b) Nickel	(c) Gold	l	(d) Copper	Ans. (b) Nickel			
2.	Which are is paramagnetic?								
	(a) Antimony	(b) Silver	(c) Mart	pel	(d) Alnico	Ans. (a) Antimony			
3.	Which one is not the unit of magnetic induction vector?								
	(a) T	(b) Wb m^{-2}	(c) $JA^{-1}h$	m^{-2}	(d) NA ⁻¹ m^{-1}	Ans. (d) NA ⁻¹ m^{-1}			
4.	Which one is not the unit of intensity of magnetisation?								
	(a) Am^{-1}	(b) $JT^{-1}m^{-3}$	(c) NT^{-1}	m^{-2}	(d) $AT^{-1}m^{-2}$	Ans. (d) $AT^{-1}m^{-2}$			
5.	Which of the following relation is not correct?								
	(a) $B = \mu_0(H+I)$	(b) $B = \mu_0$	$H(I + \chi)$	(c) <i>I</i>	$=\frac{B-\mu_0H}{\mu_0}$	(d) $\chi = \mu - I$			
	Ans. (d) $\chi = \mu - I$								
6.	Name the material for which magnetic susceptibility is high and positive?								
	(a) Ferromagnetic	(b) Param	agnetic	(c) D	iamagnetic	(d) Non-magnetic			
	Ans. (a) Ferromagn	etic							
7.	Relative permeability of iron is 1000, its absolute permeability in SI unit is								
	(a) $4\pi \times 10^{-4} TmA^{-1}$	(b) $4\pi \times 1$	$10^{-3} TmA^{-1}$	(c) $\frac{4}{3}$	$\frac{00}{\pi}TmA^{-1}$	(d) $\frac{4\times10^9}{\pi}TmA^{-1}$			
	Ans. (a) $4\pi \times 10^{-4} Tm$	A^{-1}							
8.	A magnetising force of 360 Am^{-1} produces a magnetic flux density of 0.6T in a ferromagnetic material. The susceptibility of the material is —								
	(a) 1625	(b) 1326	5	(c) 2	105	(d) 1914			
	Ans. (b) 1326								
9.	In the case of diamagnetic material								
	(a) $\mu_r > 1$, $\lambda_m > 1$	(b) $\mu_r > 1$	$l, \chi_m < 1$	(c) μ	$\lambda_r < 1, \ \lambda_m < 0$	(d) $\mu_r < 1, \chi_m > 1$			
	Ans. (c) $\mu_r < 1, \lambda_m < 0$								
10.	Relative permeability of iron is 5500. Its magnetic susceptibility is								
	(a) 5500×10^7	(b) 549	19	(c)	5501	(d) 5500 x 10^7			
	Ans. (b) 5499								
			1						

- 11. A material when placed in a magnetic field is thrown out of it. Then the material is
 (a) paramagnetic
 (b) diamagnetic
 (c) ferromagnetic
 (d) non-magnetic
- 12. While entering a paramagnetic material from air, the spacing between the magnetic lines of force(a) remains the same(b) decreases(c) increases
 - (d) first increases then decreases Ans. (b) decreases
- 13. The magnetic susceptibility of a diamagnetic material is
 - (b) slightly greater than 1
 - (c) in between 0 and 1 (d) less than 0
 - Ans. (d) less than 0

(a) nearly 1000

- 14. Curie temperature is the temperature above which
 - (a) ferromagnetic material becomes paramagnetic
 - (b) ferromagnetic material becomes diamagnetic
 - (c) paramagnetic material becomes diamagnetic
 - (d) paramagnetic material becomes ferromagnetic

Ans. ((a) ferromagnetic material becomes paramagnetic

- 15. There are four light-weight-rod samples A, B, C, D separately suspended by threads. A bar magnet is slowly brought near each sample and the following observations are noted
 - (i) A is feebly repelled (ii)
 - (iii) C is strongly attracted
 - Which one of the following is true?
 - (a) B is of a paramagnetic material
 - (c) D is of a ferromagnetic material
 - Ans. (a) B is of a paramagnetic material

2

- (ii) *B* is feebly attracted
- (iv) D remains unaffected
 - (b) C is of a diaamagnetic material
 - (d) A is of a non-magnetic material

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