DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

First Year B. Tech. (ALL COURSES) Semester-I Supplementary Examination November 2017

		Subject: Engine	ering Physics-I		
	3 Hrs			ım Mark: 70	
In	structions to the stu	dents:	THE PERSON NAMED AND PARTY AND PARTY.		
	1. Question No. 1 is No. 7 carries 12 is	s compulsory and carries 1	0 marks whereas Question N	o. 2 to Question	
	2. Attempt any 5 Or	uestions from Question No	~ ~ ~ ~		
	3. Illustrate your an	SWers with neat sketches	liaarama ata1		
	- Toobball add 13	given in the respective an	ections If such data in met	sary.	
		mid built to Dail III Examing	ition		
	J. II some part or pa	rameter is noticed to he m	issing, you may appropriately	Accima it and	
	should mention it	clearly.	or o	assume it and	
Jue	e.1) Select an approp	riate option for each of t	he following:	(10)	
	If the damping is sn	naller then the resonance wil			
	a) flatter	b) sharper	t be c) none		
2	Ultrasonic waves tra	evel with a velocity.			
	a) Equal to velocity	a)Equal to velocity of light		b) Equal to velocity of Sound	
	c) More than the ve	locity of Sound wave		WIIU	
3	Two Sources are said	d to be coherent if their emit			
	a)Same wavelength		c) Constant phase difference		
A				d) All of three	
4	The relation between μ_0 and μ_e for calcite crystal is				
	$a)\mu_0 > \mu_e$	b) $\mu_0 < \mu_e$	c) $\mu_0 = \mu_e$		
5	Which of following s	scheme does not produce lasi			
	a) Two-level	b) Three-level			
6			c) Four leve		
	Matter waves are a)transverse waves				
	c) neither electromage	b) longitudinetic nor mechanical waves	inal waves		
		rotto noi micchanical waves			
7	When a 'Q' value is p	ositive then reaction is			
3	a) exothermic	b) endothermic	c) none of these		
8	Davisson and Garman				
	a)Polarisation	experiment related to			
		b) Interference	c) electron diffra	ction	
9	Specific charge of an e	electron is equal to			
	a) 1.76 x 10 ¹¹ C/kg	1 1 7 - 11	c) 1.6×10^{-11} C/kg d) $1.76 \times$	10-11 ~//_	

b) Sound waves

10 Which of the following cannot be polarized

a)Radio waves

c) 1.6 x 10⁻¹¹ C/kg d) 1.76 x 10⁻¹¹ C/kg

c) Light waves

Q. 2 Attempt the following.	
a) Obtain the differential equation of free oscillation and find its general soluti	ion. (6)
b) What is Piezoelectric effect? Explain the production of ultrasonic wave effect.	
Q. 3 Attempt the following.	
a) Explain the theory of Newton's rings for reflected light.	(6)
b) Discuss the interference of light in thin film for reflected light.	(6)
Q. 4 Attempt the following.	
a) State and Explain Brewster's law and prove that angle between reflected rays is 90°.	and refracted (6)
b) What is specific rotation? Explain in short the principle and working of shade Polarimeter.	Laurentz half (6)
Q. 5 Attempt the following.	
a) Explain the principle and working of ruby laser.	(6)
b) Derive the expression for Acceptance angle and Numerical Aperture.	(6)
Q. 6 Attempt the following.	
a) Explain Millikan's oil drop method for the determination of electronic cha	arge. (6)
b) Describe Thomson's method for the determination of specific charge of el	lectron. (6)
Q. 7 Attempt any two of the following.	
a) What is the wave function (Ψ)? Derive time independent Schrodinger wa	ave equation. (6)
b) Derive the expression for Q value of nuclear reaction.	(6)
c) Explain Davisson-Germer experiment to prove wave nature of electron.	(6)