See.		EDKAR TECHNOLOGICAL UNIVE		
	Regular E	nd Semester Examination - Summer 2		
150	Course: B. Tech.		Semester: II	
1	Subject Code & Name: BT	BS202P (Engineering Physics)		
1	Max Marks: 60		Duration: 3 Hr.	
	which the question is 2. Use of non-program	: compulsory. /expected answer as per OBE or the Cou- based is mentioned in () in front of the nable scientific calculators is allowed wherever necessary and mention it clea	question.	
Q. 1	Solve Any Two of the follow	wing.		
A)	Define Damped Vibrations.	Set up differential equation for damped	(COI)	
	vibrations.		(Remember Understand	
B)	Explain the construction, wo	rking for production of ultrasonic waves	s (CO1)	6
	using Piezoelectric oscillator		(Understan	id)
C)	State any two applications of	f ultrasonic waves.	(CO1)	
	Calculate the length of iron t	rod which can be used to produce ultras	onic (Remembe	r& 6
	waves of 20 KHz. Density o	f iron is 7.23 X 103 kg/m3. Young's mo	dulus Understan	
	is 11.6 X 10 ¹⁰ N/m ²		Children and	
Q.2	Solve Any Two of the follo	wing.	(602)	
A)	In Newton's rings, derive an and dark ring.	expression for diameter of n th bright ris	ng (CO2) (Understa	6
B)	Explain the construction & v	vorking of Ruby laser.	(CO2)	6
,			(Understa	
C)	Explain the structure of optic	cal fiber with suitable diagram.	(CO2))
-,	-	ture of a optical fiber with core index	(Remen	iber 6
	n ₁ =1.61 and cladding index		& Unders	tand)
	nj-1.01 and classing moon			
Q. 3	Solve Any Two of the follow	wing.		
A)	With neat diagram, explain the	he construction & working of Bainbrid	dge (CO3	6) 6
	mass spectrograph.		(Underst	
B)	Write short note on Geiger N	fuller Counter.	(CO3	6) 6
			(Underst	
C)	State Heisenberg's Uncertain	ty Principle with formula.	(CO3	3) 6

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	If the uncertainty in position of an electron is 4×10^{-10} m, Calculate the uncertainty in its momentum. (h=6.62 *10 ⁻³⁴ J Sec)	(Understand)	Ŷ
Q.4 A)	Solve the following questions. Calculate Atomic Packing Fraction for SC, BCC and FCC lattices.	(CO4) (Understand)	6
B)	Explain Continuous X-ray spectra. Calculate the wavelength of X-rays when a potential difference of 30 KV is applied between filament and anode.	(CO4) (Understand)	6
Q. 5 A)	Solve Any Two of the following. Explain Diamagnetic, Paramagnetic and Ferromagnetic materials with		
B)	examples and diagram. Distinguish between Type I and Type II superconductors.	(Understand)	6
C)	Derive an expression for conductivity of Intrinsic and extrinsic (P Type & N Type) Semiconductors.	(Understand) (Understand)	6

*** End ***

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1 1 1	DR. BABASAHEB AMBUDKAR TECHNOLOGICAL UNIVERS		1 . 14
	Regular Find Semester Framination - Summer 202		
	Course: B. Tech. [Branch: All branches (Group II.) Subject Code & Namet B110SP202 Engineering Physics	Semester: 11	1.
		ration: 3.45 Hr.	Sec.
	Instructions to the Students:	•	1
	1 All the questions are compulsory.	•	1.
	2 The level of question expected answer as per OBE or the Course	Outcome (CO) on	200
	which the question is based is mentioned in () in front of the que	stion	
	3 Use of non-programmable scientific calculators is allowed		
	4. Assume suitable data wherever necessary and mention it clearly		
0.1	Sales has to a of the following	(Level/CO)	Marks
	Solve Any Two of the following. In case of Forced vibrations, prove that	(COI)	6
~,	and the second	(Understand)	6
in the second se	$A = \frac{1}{\sqrt{(\omega^2 - p^2)^2 + 4b^2p^2}}$	(Universiand)	4
			- Jack
<u>е</u> в)	Explain the construction and working for production of ultrasonic wa		6
	using Piezoelectric Oscillator.	(Understand)	
0	Write any two and loss of the sector is the	((0))	
ς,	Write any two applications of ultrasonic wayes. Calculate the thickness of quartz plate which is used to produce ultrasor	(COI)	6
	waves of 2 MHz. Density of quartz is 2.65 X 10' kg/m' and Young's m	nic (Remember od- &	
	ulus is 8 X 10 ¹⁰ N/m ²	- Understand)	
Q.2		Oliverstanki)	
A)	Derive an expression for diameter of Newton's bright and dark rings.	(CO2)	6
\sim		(Understand)	
B)	Explain the construction and working of Ruby Laser.	(CO2)	6
	Engagolution	(Understand)	
·C)	State and explain Brewster's law.	(CO2)	6
	With a slab of flint class, the same of a build of the start of the	(Remember	
	With a slab of flint glass, the angle of polarization is found to be 62° 24 Calculate the refractive index of the flint glass.		
Q. 3	Solve Any Two of the following.	Understand)	
A)	With neat diagram, explain the construction and working of Bainbridge	(00)	
V	Mass Spectrograph.		6
35 (1)	Explain the construction and working of Geiger Muller Counter.	(Understand) (CO3)	
35 ×		(Understand)	6
دو ہ	Derive Schrodinger's time independent wave equation.	(CO3)	6
		(Understand)	0
Q.4	Solve the following questions.	(,	
×^)	and the set the statutes with suitable	(CO4)	6
10	diagrams.	(Understand)	
<u>(بار</u>	Explain characteristics and continuous X-ray spectra.	(CO4)	6
\$ A		(Understand)	
· Q.5			·
(٨ ح			6
	Coercivity and Retentivity.	(Understand)	
(آل	Distinguish between Type I and Type II superconductors.	(e controlation)	6
1	When is the transferred that	(Understand)	-
1	What is Hall effect? Derive an expression for Hall Voltage and Hall	(Remember)	6
	Coefficient.	Å.	41.5
	· · · · · · · · · · · · · · · · · · ·	(Understand)	

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	DR. BABASAHEB AMBEDH	KAR TECHNOLOGICAL UNIVE	ERSITY, LONERE	
	Regular End S	Semester Examination – Summer 2	2023	
	Course: B. Tech.	Branch: All	Semester: II	
	Subject Code & Name: BTBS2	02P (Engineering Physics)		
	Max Marks: 60	Date:14/07/2023	Duration: 3 Hr.	
	which the question is base 3. Use of non-programmabl	pulsory. ected answer as per OBE or the Cou ed is mentioned in () in front of the le scientific calculators is allowed. erever necessary and mention it clea	question.	Marks
Q. 1	Solve Any Two of the following	.		
<u>A)</u>	-	up differential equation for damped	(CO1)	
·st.	vibrations.		(Remember & Understand)	6
8)	Explain the construction, working using Piezoelectric oscillator.	g for production of ultrasonic waves		6
C)	-	rasonic waves. which can be used to produce ultrasc n is 7.23 X 10 ³ kg/m ³ , Young's mod	(Remember &	6
Q.2	Solve Any Two of the following	g.		
A)	In Newton's rings, derive an exp and dark ring.	ression for diameter of n th bright rin	g (CO2) (Understand)	6
B	Explain the construction & work	ing of Ruby laser.	(CO2) (Understand)	6
C)	Explain the structure of optical fi	iber with suitable diagram.	(CO2)	
_	Calculate the numerical aperture	of a optical fiber with core index	(Remember	6
	$n_1=1.61$ and cladding index $n_2=1$	$1.55 \int n^{1+32}$	& Understand)	
Q. 3	Solve Any Two of the following	j .		
<u>A)</u>	With neat diagram, explain the comass spectrograph.	onstruction & working of Bainbridg	ge (CO3) (Understand)	6
B)	Write short note on Geiger Mulle	er Counter.	(CO3) (Understand)	6
C)	State Heisenberg's Uncertainty P	Principle with formula.	(CO3)	6

State Heisenberg's Uncertainty Principle with formula.

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		Ti -	A Car	•***]	
	If the uncertainty in position of an electron is 4×10^{-10} m, Calculate uncertainty in its momentum. (h=6.62 *10 ⁻³⁴ J Sec)	the ((Understand)		
Q.4 A)	Solve the following questions. Calculate Atomic Packing Fraction for SC, BCC and FCC lattices.		(CO4) (Understand)	6	
Б)	Explain Continuous X-ray spectra. Calculate the wavelength of X-rays when a potential difference of is applied between filament and anode.	30 KV	(CO4) (Understand)	6	
Q. 5	Solve Any Two of the following. Explain Diamagnetic, Paramagnetic and Ferromagnetic materials w	vith			
B	examples and diagram. Distinguish between Type I and Type II superconductors.		(Understand) (Understand)	6 6	1
C)	Derive an expression for conductivity of Intrinsic and extrinsic (P & N Type) Semiconductors.	Туре	(Understand)	6	

*** End ***

ſ		DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY	, LONERE	
1		Regular & Supplementary Examination – Winter 2023		
		Course: B. Tech. Branch: All Semest	er: I	
		Subject Code & Name: BTBS102P (Engineering Physics)		
			on: 3 Hr.	
		 Instructions to the Students: All the questions are compulsory. The level of question/expected answer as per OBE or the Course Ou which the question is based is mentioned in () in front of the question Use of non-programmable scientific calculators is allowed. Assume suitable data wherever necessary and mention it clearly. 	n.	Marks
-	0.1		(Level/CO)	•
-	Q. 1	Solve Any Two of the following.		12
3-14	A)	Define free oscillations. Derive an expression for differential equation of free oscillations.	(CO1) (Remember & Understand)	6
	B)	Explain the construction, working for production of ultrasonic waves using Magnetostriction method.	(CO1) (Understand)	6
	C)	State properties of ultrasonic waves. A quartz crystal having 03 mm thickness is vibrating at resonance. Calculate the fundamental frequency of vibrations for which ultrasonic waves are generated. Given for quartz, Young's Modulus is 7.9×10^{10} N/m ² , Density is 2650 Kg/m ³	(CO1) (Remember & Understand)	6
	Q.2	Solve Any Two of the following.		12
	A)	Derive an expression for the optical path difference for the reflected rays in a thin film of constant thickness and hence find the conditions for maxima and minima.	(CO2) (Understand)	6
	B)	Explain the construction & working of Helium-Neon Laser with neat & labeled diagram.	(CO2) (Understand)	6
	C)	Explain the structure of optical fiber with suitable diagram. Refractive index of the core is 1.48 and that of cladding is 1.47 in an optical fiber. Calculate numerical aperture.		6
	Q. 3	Solve Any Two of the following.		12
	A)	With neat diagram, explain the construction & working of Bainbridge mass spectrograph.	(Understand)	6
	B)	With graph and suitable diagram explain the construction & working of Geiger Muller Counter.	(CO3) (Understand)	6
	C)	Derive Schrodinger's time independent wave equation.	(CO3) (Understand)	6
	Q.4	Solve the following questions.		12
	A)	Calculate Atomic Packing Fraction for SC, BCC and FCC structures.	(CO4) (Understand)	6

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	Explain Characteristics X-ray spectra.	į.
	Explain Characteristics it day when a pot mial difference of 20 KV Calculate the wavelength of X-rays when a pot mial difference of 20 KV	ł
B)	Car that the second and anode	all
	is applied between filament and anode.	l

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	в аррики остает		
Q. 5	Solve Any Two of the following.		12
() A)	Explain B-H curve for ferromagnetic materials.	(Remember & Understand)	6
B)	What is Superconductivity? Explain Meissner effect in Superconductors.	(Remember & Understand)	6
C)	What is Hall effect? Derive an expression for Hall Voltage and Hall coefficient.	(Remember & Understand)	6
	*** End ***		

(CO4) (Understand)

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	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL	UNIVERSITY, LONERE	
	End Semester Examination – Winter	- 2019	
	Course: B. Tech	Sem: I	
	Subject: Engineering Physics (PHY1202)	Marks:60M	
	Date:13/12/2019	Duration: 3 Hr.	
	 Instructions to the Students: All the questions are compulsory. The level question/expected answer as per OBE or the C which the question is based is mentioned in () in front of 3. Use of non-programmable scientific calculators is allow 4. Assume suitable data wherever necessary and mention in 	f the question.	
01		(Level/CO)	Mark
Q. 1	Solve Any Two of the following.		
A)	What are forced oscillations? Obtain the differential equation of forced oscillations.	(Synthesis)	06
B)	Explain the production of ultrasonic waves using magnetostriction effect. Calculate the length of Ni rod needed to produce ultrasonic waves of frequency 40 KHz. Density of rod is 8.9 gm/cm ³ and Young's modulus of rod is 20.8 X 10 ¹⁰ N/m ² .	(Knowledge /Remember)	06
C)	Explain the effect of frequency and temperature on polarization in dielectric.	(Knowledge /Remember)	06
Q.2	Solve Any Two of the following.		
A)	Prove that in Newton's Rings by reflected light at		
	numbers.	(Evaluation)	06
B)	Explain the construction and working of Ruby laser with neat diagram.	(Comprehension/Understand)	06
C)	Define acceptance angle and numerical aperture. Refractive index of core is 1.48 and that of cladding is 1.47 in an optical fiber. Calculate critical angle, numerical aperture and acceptance angle.	(Analysis)	06
Q. 3	Solve Any Two of the following.		
	Explain the principle and working of Bainbridge Mass	100 A	

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	•		(a theois)	06
[B)	What is uncertainty principle? Using this principle prove that electron cannot exist in the nucleus.	(Synthesis)	06
	C)	Explain the construction and working of G.M. counter.	(Comprehension/ Understand)	
-	Q.4	Solve Any Two of the following.		06
`	A)	Show that shortest wavelength of continuous X-rays is inversely proportional to the potential difference applied.	(Synthesis)	00
0	B)	Derive the relation between lattice constant and density of the cubic crystal. Copper has FCC structure and its atomic radius is 1.278×10^{10} m. Calculate density of Cu. Given atomic weight of Cu = 63.5.	(Application)	
. [C)	Derive an expression for electromagnetic wave in free space: and hence calculate the velocity of light in free space.	(Synthesis)	06
	Q. 5	Solve the following.		
	A)	Differentiate Type I and Type II superconductors.	(Application)	06
•	. B)	What is Hall effect? Derive an expression for Hall voltage and Hall coefficient.	(Analysis)	06
		<u></u>		
		***Paper End ***		

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