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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute)

Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

M.TECH (INT.)

FIRST YEAR (SEMESTER-II) THEORY EXAMINATION (2020-2021)

(Objective Type)

Subject Code: AMIAS0201A
Subject: Engineering Physics

Max. Mks. : 70
Time : 70 Minutes

General Instructions:

All questions are compulsory.

Question No- 1 to 15 are objective type question carrying 2 marks each.

Question No- 16 to 35 are also objective type/Glossary based question carrying 2 marks each.

Q.No	Question Content	Question Image	Category	Sub Category	Marks	Options Randomization	Type	Difficulty	Correct	Option1	Option2	Option3	Option4
1	Special theory of relativity treats problems involving		Single Choice Questions	Single Choice Questions	2		Single Choice	Smart	. Inertial frame of reference	. Inertial frame of reference	Non-accelerated frame of reference	Non-inertial frame of reference	Accelerated frame of reference
2	Michelson and Morley experiment was designed to measure		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	The velocity of earth relative to ether	The relativistic mass of an electron	The relativistic energy of electron	The velocity of earth relative to ether	The acceleration of gravity on earth surface
3	Two photons of light are approaching each other, their relative speed is		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	c	0	c/2	c	less than c
4	Matter wave are ?		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Wave associate with moving particle	EM wave	Sound wave	Wave associate with moving particle	None of these
5	Light has		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Both of these nature	. Wave nature	Particle nature	Both of these nature	. None of these
6	Among the following particles, which one will have the shortest wavelength associated with it for the same velocity		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	. α particle	. α particle	. β particle	Proton	Neutron
7	Which of the following conserved when light waves interfere		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Energy	Amplitude	Energy	Intensity	Momentum
8	Two light sources are said to be coherent if waves produced by them have the same		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Frequency and constant phase difference	Amplitude Only	Wavelength Only	Amplitude and Wavelength	Frequency and constant phase difference
9	The diffraction Phenomenon is		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Bending of light around an obstacle	Bending of light around an obstacle	Rectilinear propagation of light	Oscillation of light wave in one direction	None of above
10	Fermi level lies exactly in the centre of the forbidden energy gap (Eg) between the conduction band and valence band		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Intrinsic semiconductor	N – type semiconductor	Intrinsic semiconductor	P – type semiconductor	None of these
11	In a semiconductor the gap between conduction band and valence band is of the order of		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	1 eV	5 eV	10 eV	15 eV	1 eV
12	Permanent memory is		Single Choice Questions	Single Choice Questions	2		Single Choice	Smart	ROM	ROM	RAM	Program Tape	Plain Disc
13	The inner core of an optical fiber is _____ in composition.		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	Glass or Plastic	liquid	Copper	Bimetallic	Glass or Plastic
14	When a beam of light travels through media of two different densities, if the angle of incidence is greater than the critical angle, _____ occurs.		Single Choice Questions	Single Choice Questions	2		Single Choice	Smart	Total internal reflection	Total internal reflection	Refraction	Incidence	Criticism

Q.No	Question Content	Question Image	Category	Sub Category	Marks	Options Randomization	Type	Difficulty	Correct	Option1	Option2	Option3	Option4
15	Relation which was proved by Einstein’s at thermal equilibrium state is		Single Choice Questions	Single Choice Questions	2		Single Choice	Brilliant	B12=B21	B12=B13	B12=B21	. B22=B23	B21=B31
16	In graded index fiber, diameter of core is ……		Glossary I	Glossary I	2		Single Choice	Brilliant	Non uniform	Uniform	30 – 100 µm	Non uniform	5- 10 µm
17	In step index fiber, diameter of core is ……		Glossary I	Glossary I	2		Single Choice	Smart	Uniform	Uniform	30 – 100 µm	Non uniform	5- 10 µm
18	In single mode step index fiber, diameter of core is ……		Glossary I	Glossary I	2		Single Choice	Smart	5- 10 µm	Uniform	30 – 100 µm	Non uniform	5- 10 µm
19	In multimode step index fiber, diameter of core is ……		Glossary I	Glossary I	2		Single Choice	Smart	30 – 100 µm	Uniform	30 – 100 µm	Non uniform	5- 10 µm
20	Conductivity of conductor is …….		Glossary II	Glossary II	2		Single Choice	Smart	σ= n e μ	σ=n=e ND μe	σ= n e μ	σi=e ni(μe+ μh)	σp=e NA μh
21	Conductivity P type semiconductor is ……………		Glossary II	Glossary II	2		Single Choice	Smart	σp=e NA μh	σ=n=e ND μe	σ= n e μ	σi=e ni(μe+ μh)	σp=e NA μh
22	Conductivity of N type semiconductor is ………………		Glossary II	Glossary II	2		Single Choice	Smart	σn=e ND μe	σ=n=e ND μe	σ= n e μ	σi=e ni(μe+ μh)	σp=e NA μh
23	Conductivity of intrinsic semiconductor is ……..		Glossary II	Glossary II	2		Single Choice	Smart	σi=e ni(μe+ μh)	σ=n=e ND μe	σ= n e μ	σi=e ni(μe+ μh)	σp=e NA μh
24	Condition of constructive interference in uniform thin film due to reflected light is…...		Glossary III	Glossary III	2		Single Choice	Brilliant	2µtcosr = (2n+1) λ/2	2µtcos(r+θ) = nλ	2µtcos(r+θ) = (2n+1) λ/2	2µtcosr = (2n+1) λ/2	2µtcosr = nλ
25	Condition of destructive interference in uniform thin film due to reflected light is…..		Glossary III	Glossary III	2		Single Choice	Brilliant	2µtcosr = nλ	2µtcos(r+θ) = nλ	2µtcos(r+θ) = (2n+1) λ/2	2µtcosr = (2n+1) λ/2	2µtcosr = nλ
26	Condition of constructive interference in wedge shaped thin film due totransmitted light is ………		Glossary III	Glossary III	2		Single Choice	Brilliant	2µtcos(r+θ) = nλ	2µtcos(r+θ) = nλ	2µtcos(r+θ) = (2n+1) λ/2	2µtcosr = (2n+1) λ/2	2µtcosr = nλ
27	Condition of destructive interference in wedge shaped thin film due totransmitted light is …...…		Glossary III	Glossary III	2		Single Choice	Brilliant	2µtcos(r+θ) = (2n+1) λ/2	2µtcos(r+θ) = nλ	2µtcos(r+θ) = (2n+1) λ/2	2µtcosr = (2n+1) λ/2	2µtcosr = nλ
28	Rest mass energy of electron is…………		Glossary IV	Glossary IV	2		Single Choice	Brilliant	moc2	E= mc2	moc2	Zero	(m- mo) c2
29	The rest mass of photon is		Glossary IV	Glossary IV	2		Single Choice	Brilliant	Zero	E= mc2	moc2	Zero	(m- mo) c2
30	The relativistic kinetic energy of electron is………..		Glossary IV	Glossary IV	2		Single Choice	Brilliant	(m- mo) c2	E= mc2	moc2	Zero	(m- mo) c2
31	Total energy of moving particle ………		Glossary IV	Glossary IV	2		Single Choice	Brilliant	E= mc2	E= mc2	moc2	Zero	(m- mo) c2
32	According to Schrodinger, the energy of a particle in one dimensional box is		Glossary V	Glossary V	2		Single Choice	Brilliant	(n2 h2)/(8mL2)		(n2 h2)/(8mL2)	h/4πΔt	unity
33	According to Heisenberg, the energy of particle is …………		Glossary V	Glossary V	2		Single Choice	Brilliant	h/4πΔt		(n2 h2)/(8mL2)	h/4πΔt	unity
34	The total probability of finding the particle in space must be		Glossary V	Glossary V	2		Single Choice	Brilliant	unity		(n2 h2)/(8mL2)	h/4πΔt	unity
35	the de' Broglie wavelength(λ) associated with a particle of mass m and kinetic energy E is		Glossary V	Glossary V	2		Single Choice	Brilliant			(n2 h2)/(8mL2)	h/4πΔt	unity