Do Pooze Singh

21/6/2023

National Institute of Technology, Hamirpur(HP)

End Semester Examination - June, 2023

Course - B. Tech. Semester - 2nd

Subject Name -Engineering Physics Maximum Marks: 50

Subject Code - PH-101 Time: 3:00 Hour

All questions are compulsory

Q 1:

a) What is meant by effective mass of electronic	
b) Draw wave function of ground at the a st	(1)
c) Comment on the role of mate is 1 st excited state for electron trapped in a box	(1)
d) Does charges from anti-i	(1)
e) Sketch the propagation outside contributes to the flux through a closed surface?	(1)
b) What is the all a standard of light signal in graded index fiber.	(1)
what is the physical significance of equation $\nabla \cdot \mathbf{B} = 0$	(1)
g) Define Poynting vector. Mention its SI unit.	(1)
i) which type of semiconductor materials are used for laser diodo?	(1)
1) Enlist the various mechanisms involves in attenuation in the article	(1)
J) What is Magnetostriction & Piezoelectric effect?	(1)
0 2: Compute 4	(1)
Given that $E_g = 0.72$ eV and assume m [*] = m	0 K.
1110000000000000000000000000000000000	(5)
Q 3: An optical fibre (step index) is $2m \log$ and has a core diameter of 20 mm . If a ray of is incident on one end of the fibre at an angle of 40° , how many modes are possible? refractive index of core of fibre is 1.3. Given: operating wavelength 1300nm	light The
O 4: Homer d	(5)
Ampere's law?	
	(5)
Q 5: Show that electromagnetic waves are transverse in not	. ,
e and de dansverse in nature.	(5)
Q 6: Illustrate principle, working and energy level diagram of Pulse I	
output in pulse form?	es
	(5)
Q 7: What is superconductivity? Explain Meissner's effect, Type-I and Type-II superconducted	ors
0 8: An electron is tranned in a grant is	(5)
required to excite the electron from its areas 1	(3)
state the election from its ground state to the fourth excited state.	(5)
 Q 9: Photon of initial energy 90 keV undergoes Compton scattering at an angle 60°. Find: (i) The energy of the scattered photon and (ii) The recoil energy of the electron 	(5)
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