Course / Branch / Semester / Section: B.Tech. 2nd Sem (C,F)
Course Code: BPHY-003
Course Name: Physics -II
Date of Examination: 28-02-25
Examination Timings: 9:30-11:00
Maximum Marks: 30

Sessional Outcomes		[CO#]
i.	Understand about the EM waves and their propagation in various media.	3
ii.	Obtain the idea about central forces and its applications.	4

Section –A (Each question carries 1 mark)

Q.1. Answer ALL questions (1 x 6 = 6 Marks)

		[BTL]	[CO]	[PO]
i.	What are the properties of equipotential surfaces?	1	2	1
ii.	Which law indicates the absence of magnetic monopoles?	5	1	2
iii.	What are the properties of electromagnetic waves?	1	1	1
iv.	What is the non-inertial frame of reference?	2	2	1
v.	What is the plane polarized EM Waves?	2	1	2
vi.	Classify different types of orbits in terms of eccentricity.	2	2	1

Section – B (Each question carries 2 mark)

Answer ALL questions (2 x 2 = 4 Marks)

		[BTL]	[CO]	[PO]
Q.2.	Derive the equation of continuity for electromagnetic waves.	2	1	
Q. 3.	Show that in any closed path, the total work done by a non-conservative force is not zero	1	2	

Section – C (Each question carries 4 mark)

Answer ALL questions (4 x 2= 8 Marks)

		[BTL]	[CO]	[PO]
Q. 4.	Derive any two Maxwell's equations and what is the physical significance?	2	1	2
	OR			
	Find the Reflection and transmission coefficient for electromagnetic waves.	3	1	2
Q. 5.	What is coriolis acceleration? How it helps in weather forecasting.	2	2	1
	OR			
	What is angular momentum and prove the law of conservation of angular momentum?	5	2	3

Section –D (each question carries 6 mark)

Answer ALL questions (6 x 2=12 Marks)

		[BTL]	[CO]	[PO]
Q.6.	Prove that the electromagnetic waves are transverse in nature.	3,4	1	1
	OR			
	What is Poynting theorem? Derive am expression for it.	1,2,4	1	1
Q.7.	Explain the conservative and non-conservative forces with examples. Show the conservative forces, $\vec{F} = -grad\ U$, Where U is potential energy.	2,3,4	2	1
	OR			
	What are the Kepler's laws of planetary motion and find the energy equation for planets?	2,3,4	2	2

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