

PHYSICS LECTURE WISE QUESTIONS (1st YEAR)

Unit No. & Name	Lecture No.	Questions	Weightage as per University Exam	Reference
Module- 2 Electromagnetic Field Theory	L1	What is displacement current?	5	UPTU (2009-10)
		What was the inconsistency in Ampere's law before Maxwell and how Maxwell makes it consistent? Also explain the role and characteristics of displacement current.	2	UPTU (2014-15)
		Whether earth is an inertial frame of reference or not, Explain.	2	UPTU (2016-17)
	L2	Write down the Maxwell's equation in integral and differential form. Write the physical significance for each equation.	5	UPTU (2010-11)
		Find the expression for energy in an electromagnetic field.	7.5	UPTU (2012-13)
		Give the postulates of special theory of relativity.	2	UPTU (2017-18)
	L3	State and deduce Poynting theorem for the flow of energy in an electromagnetic field.	7.5	UPTU (2017-18)
		Give the physical significance of Poynting theorem.	5	UPTU (2012-13)
		Calculate the length of rod of length 5m in a frame of reference moving with a speed $0.6c$ in a direction making an angle 30° with the rod.	5	UPTU (2012-13)
	L4	Derive the wave equations and find velocity of electromagnetic waves in vacuum. Also show that E, H and direction of propagation form a set of orthogonal vectors. (or transverse in nature)	5	UPTU (2009-10)
		Show that no signal can travel faster than the speed of light.	5	UPTU (2010-11)
	L5	Derive an expression for mass variation with velocity in the relativistic range.	7.5	UPTU (2014-15)
		Derive Einstein's mass-energy relation.	5	UPTU (2011-12)
		A person observes two men each of rest mass 60 kg moving towards each other each with a velocity $0.5c$. What is mass of one man as observed by the other?	5	UPTU (2014-15)
	L6	Show that rest mass of photon is zero.	2	UPTU (2013-14)
		The mass of a moving electron is eleven times its rest mass. Find its Kinetic Energy and momentum.	5	UPTU (2015-16)
		Find the relation between relativistic energy and momentum.	2	UPTU (2014-15)