IILM UNIVERSITY

Assignment No. : 01 (Module 1: Electromagnetic Theory)			
Subject	**Physics**	**Subject Code**	**UBS1002**

SHORT QUESTIONS

1. Write the physical significance of Poynting vector.
2. Explain the concept of displacement current.
3. How Maxwell corrected Ampere's circuital law?
4. What is the relation between refractive index and relative permittivity?
5. Explain skin depth. Write its mathematical relation?

LONG QUESTIONS

1. State and deduce Poynting theorem for the flow of energy in electromagnetic waves.
2. Use Maxwell equations from electrodynamics to show E and B follows the wave equation. Further show that the velocity of plane electromagnetic waves in the free space is given by $c = \frac{1}{\sqrt{\mu_o \varepsilon_o}}$.
3. State and derive the continuity equation.
4. Write Maxwell's equations in vacuum, non-conducting and conducting medium.
5. Show that the electromagnetic waves are transverse in nature.