INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Show that the potential due to an arbitrary charge distribution of finite extent at a large distance can be expressed as a sum of multipole potentials.	[5]	1	2
Q.1(b)	Determine the electrical image for the system consisting of a point charge q placed at a distance d from the center of a grounded conducting sphere of radius a.	[5]	1	5
Q.2(a)	Show that the magnetic moment associated with the orbital motion of an electron in an atom must be an integral multiple of some basic units.	[5]	2	2
Q.2(b)	Certain volume current distribution J gives rise to the magnetic vector potential $A(r,\theta, z)= K\theta$, where K is a constant. Find the corresponding current density J.	[5]	2	1
Q.3(a)	Define Poynting vector. What does it represent? Illustrate.	[5]	3	2
Q.3(b)	Discuss how Maxwell's generalized Ampere's circuital law.	[5]	3	6
Q.4(a)	A plane electromagnetic wave falls obliquely on the interface between two simple dielectrics. Assuming the electric vector perpendicular to the plane of incidence develop expressions for the amplitude reflection and transmission coefficients.	[5]	4	6
Q.4(b)	An em wave polarized perpendicular to the plane of incidence impinges at 30° on a glass slab. Find the amplitude reflection coefficient.	[5]	4	1
Q.5(a)	Develop the expression for the magnetic vector potential at far fed (radiation) zone.	[5]	5	3
Q.5(b)	Find the retarded potentials of an oscillating dipole.	[5]	5	1

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