R07

Code: R7211003

B.Tech II Year I Semester (R07) Supplementary Examinations, May 2013

ELECTRO MAGNETIC WAVES & TRANSMISSION LINES

(Electronics & Instrumentation Engineering)

Time: 3 hours Max. Marks: 80

Answer any FIVE questions

All questions carry equal marks

*****

1 (a) Define the following terms:
(i) Coulomb's law. (ii) Electric field intensity.
(iii) Electric flux density. (iv) Gauss law.
(b) Give the relation between E and V. Derive the necessary expressions.

2 (a) Derive the Maxwell's two equations for magneto static fields.
(b) Give the Ampere's circuital law and its applications.

3 (a) Derive the Maxwell's equations for time varying fields.
(b) Discuss about dielectric-dielectric and dielectric-conductor interfaces.

4 (a) Discuss about wave propagation in lossless and conducting media with examples.
(b) Give all relations between E and H and sinusoidal variations.

5 (a) Discuss about reflection and refraction of plane waves with necessary equations.
(b) What is poyinting vector? State and prove the poyinting theorem.

6 (a) Give the analysis of parallel plane wave guides for TE and TM modes.
(b) Describe the following terms related to wave guides.
(i) Cut-off frequencies. (ii) Cut-off wave lengths.

7 (a) Give the transmission line parameters and transmission line equations.
(b) Derive the expression for characteristic impedance and explain about its significance.

8 (a) Discuss about input impedance relations for SC and OC lines.
(b) Discuss about single and double stub matching with necessary diagrams.

*****