

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 52202

M.E. DEGREE EXAMINATION, NOV 2016

Elective

Communication Systems

15PCM512 - NUMERICAL TECHNIQUES IN ELECTROMAGNETICS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

(PART A - 5x20=100)

1. (a) (i) Derive the expression for electrostatic and magnetic fields. (15)
(ii) Write short notes on boundary conditions between two medium. (5)

Or

(b) Explain in detail about time varying potentials. (20)

2. (a) Explain the separation of variables in rectangular co-ordinates in terms of 2D Laplace equations. (20)

Or

(b) Explain and derive the scattering expression by dielectric sphere and scattering cross sections using practical applications. (20)

3. (a) Derive the expressions for hyperbolic PDE's. (20)

Or

(b) How the finite difference techniques are used to study the characteristics of transmission lines? (20)

4. (a) Explain in detail about weighted residual method. (20)

Or

(b) Define Antithetic variants? Derive the expression for Monte Carlo method integration with Antithetic variants. (20)

5. (a) Explain and derive the expression for Newton's method in detail. (20)

Or

(b) Explain PSO optimization technique with a neat example. (20)
