

Code: **ECMC1T5B**

I M.Tech - I Semester-Regular Examinations-February 2016

**ANTENNA ARRAYS AND SYNTHESIS
(MICROWAVE & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) Explain the antenna terms of power density, effective length and radiation mechanism. 8 M
b) Explain the vector potential for electric and magnetic current sources. 6 M
2. a) Explain Scanning arrays and compare rectangular to polar graphical solutions. 7 M
b) Explain N- element linear arrays for non- uniform amplitude excitations. 7 M
3. a) Explain the array patterns evaluation including mutual coupling. 7 M
b) Explain Schelkunoff's unit circle representation. 7 M

4. a) Derive array factor, beam width for rectangular arrays. 7 M
- b) Explain the expressions for beam width and directivity of circular arrays. 7 M
5. a) Explain continuous line source, discretization of continuous sources. 7 M
- b) Explain wood-ward Lawson method. 7 M
6. a) Explain about Hemi spherical coverage using planar surface and half sphere. 8 M
- b) Explain in briefly multifaceted surfaces. 6 M
7. a) Explain the analysis of micro strip patch arrays. 7 M
- b) Explain strip line- fed slot coupled array and finite patch array. 7 M
8. Write short notes on
1. Antenna Phase measurement. 4 M
 2. Antenna Directivity measurement. 5 M
 3. Antenna Impedance measurement. 5 M