

Code: ECMC2T5A

I M.Tech - II Semester - Regular Examinations – AUGUST 2016

SMART ANTENNAS
(MICROWAVE & COMMUNICATION ENGINEERING)

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) Explain the features and benefits of smart antenna systems. 7 M
- b) Explain Friis transmission formula in antennas. 7 M
- 2) Explain about Fixed Beam Arrays and Retrodirective Arrays. 14 M
3. a) Explain about probability density functions in random process with mathematical equations. 7 M
- b) Explain Stationarity and Ergodicity in random process. 7 M
4. a) Explain the historical development of Smart Antennas. 7 M
- b) Explain code division transmit diversity method. 7 M

5. a) Explain constant modulus algorithm for adaptive Beamforming. 7 M
- b) Compare LMS and RLS algorithms for adaptive beamforming. 7 M
6. a) Compare Bartlett and Capon methods of spectral estimation. 7 M
- b) Explain Linear Prediction method for Angle of Arrival Estimation. 7 M
7. a) Explain Maximum Entropy Angle of Arrival Estimate. 7 M
- b) Explain MUSIC algorithm for AOA estimate. 7 M
8. a) Explain about optimum antenna element spacing in beamforming array performance. 7 M
- b) Explain different multi user modulation schemes. 7 M