Reg. No. :

Question Paper Code: 52212

M.E. DEGREE EXAMINATION, NOV 2016

First Semester

Communication Systems

15PCM102 - ADVANCED RADIATION SYSTEMS

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Explain the line current distribution and obtain the radiation resistance of a simple dipole antenna. (20)

Or

   (b) Derive expression for the apex angle of Log-periodic antenna and explain how the log periodic antenna acts as a broadband antenna. (20)

2. (a) Write short notes on field equivalence principle, uniform aperture distribution on slot antenna, Babinet principle and aperture blockage. (20)

Or

   (b) Develop an expression for the field distribution across the aperture of a parabolic reflector. (20)

3. (a) Explain the radiation mechanisms of broad side antenna array and end fire antenna array with neat sketches. (20)

Or

   (b) How does the directivity of an array represent the figure of merit on the operation of the system? Derive expressions for the directivity of broadside array and end fire array. (20)

4. (a) Explain the working of circular patch antenna and derive the expression for resonant frequency. (20)

Or

(b) Explain the various micro-strip antennas and draw its radiation pattern. Explain the transmission line model of rectangular patch antenna. (20)

5. (a) Derive FRISS transmission formula and hence deduce an expression for gain of an antenna. (20)

Or

(b) Draw and explain the anechoic chambers and absorbing materials used for antenna measurements. (20)

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