M 25361

**VI Semester B.Tech. Degree (Reg./Supple./Improv. – Including-Part Time)
Examination, May 2014**

(2007 Admn. Onwards)

PT 2K6/2K6 EC 603 : RADIATION AND PROPAGATION

Time : 3 Hours

Max. Marks : 100

Instruction : *Answer all questions.*

PART – A

(8×5=40)

1) State and explain Babinet's principle.

2) A transmitting antenna with an effective height of 100 meters has a current at the base 100 Amperes (rms) at the frequency of 300 kHz. Find

   i) The field strength at a distance of 10 km.

   ii) The radiated power.

3) Define and explain array factor.

4) State and explain pattern multiplication.

5) What are the advantages of folded dipole over half wave dipole antenna ?

6) What is 'V' antenna ? Draw its structure and explain.

7) Explain the features of ground wave propagation.

8) What are plasma oscillations ? Explain.

P.T.O.

PART – B

9) a) What are the application of Lorentz reciprocity theorem to a set of dipole antennas ?   15

OR

b) Define and explain

   i) Directivity

   ii) Gain

   iii) Beam efficiency

   iv) Radiation intensity

   v) Patterns of an antenna.   15

10) a) What are Binomial array ? Derive the design equations of a Binomial array and also explain the steps of design.   15

OR

b) Derive the radiation equations for an end-fine array. Enumerate its applications.   15

11) a) Draw a 3 element Yagi-Uda antenna. Explain its construction and principle. Derive an expression for its gain.   15

OR

b) With neat diagrams explain frequency independent antennas.   15

12) a) Explain about spherical earth propagation in detail.   15

OR

b) Explain about tropospheric scatter of waves in detail.   15

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