

Reg. No. :

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**Question Paper Code : 13362**

B.E./B.Tech. DEGREE EXAMINATION, MAY /JUNE 2012.

Sixth Semester

Electronics and Communication Engineering

080290041 — ANTENNA AND WAVE PROPAGATION

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a quarter –wave monopole antenna?
2. Write the relationship between gain and directivity.
3. Compare broadside array and Hansen-Woodyard array.
4. Define pattern multiplication.
5. What are directors and reflectors of an Yagi- Uda antenna?
6. What is plasma antenna?
7. List the types of fading.
8. What is skip distance?
9. What is the relation between far field and plane wave?
10. Define group velocity.

PART B — (5 × 16 = 80 marks)

11. (a) Derive the expression for the radiation resistance of a halfwave dipole, from first principles.

Or

- (b) Write notes on :
- (i) Folded dipole. (10)
  - (ii) Radiation resistance. (6)

12. (a) Derive the expressions for directions of pattern minima and maxima of an end fire array. Also derive an expression for half power beam width of the array.

Or

- (b) Write notes on :
- (i) Phased array. (8)
  - (ii) Smart antenna. (8)

13. (a) Explain in detail about reflector antennas and their feed systems.

Or

- (b) Derive, from first principles, the expression for radiation resistance of a loop antenna.

14. (a) Explain the effect of earth's magnetic field on ionospheric transmission.

Or

- (b) Explain :
- (i) Duct propagation. (9)
  - (ii) Diversity reception. (7)

15. (a) Explain an experimental setup and method of measuring the following with respect to antenna.

- (i) Gain. (8)
- (ii) Impedance. (8)

Or

- (b) Explain the measurement of vertical incidence and Group delay in Ionospheric transmission.