

C 6262

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Name.....

Reg. No.....



**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2005**

EC 2K 602. RADIATION AND PROPAGATION

(New Scheme)

Time : Three Hours

Maximum : 100 Marks

1. (a) What are the three different antenna field zones ? Explain them. Write their boundaries.
(b) Define (i) Beam efficiency ; (ii) Radiation intensity ; and (iii) Self impedance.
(c) Explain the features of binomial array.
(d) State the advantages of radiation pattern multiplication principle.
(e) Explain the construction of V antenna, with a neat sketch.
(f) Draw the structure of Cassegrain antenna. State its advantages and limitations.
(g) What is plasma frequency ? Explain write equation for it.
(h) Write the characteristic equations of Ionosphere.

(8 × 5 = 40 marks)

2. (a) (i) Explain the potential functions for sinusoidal oscillations.
(ii) Differentiate halfwave dipole from quarter wave monopole.

Or

- (b) (i) Derive the directivity value of halfwave dipole.
(ii) State and derive Lorentz reciprocity theorem.

3. (a) With neat sketches, explain in detail the radiation pattern multiplication principle.

Or

- (b) Broadly differentiate BSA from EFA. Derive expressions for half power beam widths for both BSA and EFA.

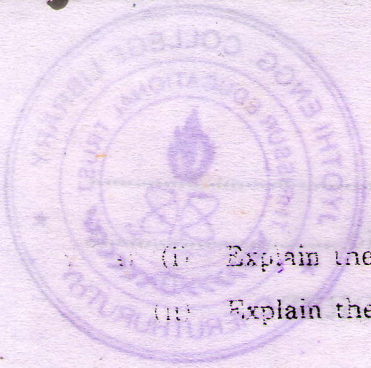
4. (a) Differentiate :

- (i) Traveling wave antenna from standing wave antenna.
(ii) V antenna from Rhombic antenna.

Or

- (b) Draw a neat sketch of 3 element YAGI-UDA antenna array. Derive an expression for gain of 3 element YAGI-UDA array.

Turn over



- (i) Explain the limitations of ground wave propagation.
- (ii) Explain the characteristics of tropospheric waves.

- (i) Differentiate sky wave propagation and space wave propagation.
- (ii) Define and explain :

- (1) Critical frequency
- (2) Virtual height.

(4 × 15 = 60 marks)