Code: 9A04503

R09

B.Tech III Year I Semester (R09) Supplementary Examinations December 2015

ANTENNAS & WAVE PROPAGATION

(Electronics and Communication Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Derive an expression for effective aperture area of antenna.
(b) Define retarded potential and explain Helmholtz theorem as applicable for antenna.

2 (a) Write short notes on effective area and effective height.
(b) Show that the radiation resistance of a half wave dipole is 73 Ω.

3 (a) With neat figures, explain the features of End fire arrays.
(b) What are the differences between binomial and linear arrays?

4 (a) List the practical design considerations for Monofilar Helical Antenna in axial mode.
(b) Explain the features of Helical antennas with a neat figure.

5 (a) What are the characteristics of micro strip antennas?
(b) With a neat sketch explain the image formation for the case of 60° corner reflector.

6 (a) List the tolerances and applications of Len's antennas.
(b) Explain the term antenna terminal impedance and give the RLC equivalent circuit of it.

7 (a) Discuss different modes of wave propagation.
(b) Explain the field strength variation with distance and height.

8 Write explanatory notes on the following:
(a) Energy loss in Ionosphere.
(b) Refraction and reflection of sky waves by Ionosphere.
(c) MUF, LUF and OF.

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