

Code: 9A04503

**R09**

B.Tech III Year I Semester (R09) Regular & Supplementary Examinations December 2014

**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) Explain radiation and beam efficiency.  
(b) Discuss basic Maxwell's equation.
- 2 (a) Discuss directives of small and large loops.  
(b) Explain the radiation characteristics of dipoles.
- 3 (a) Find the Null-to-Null beam width of end-fire array.  
(b) What is the principle of pattern multiplication? List the advantages and disadvantages.
- 4 (a) Discuss the practical design considerations for Monofilar helical antenna in normal mode.  
(b) List the characteristics of folded dipoles.
- 5 (a) Give the advantages and limitations of micro strip antennas.  
(b) Explain the features of corner reflectors.
- 6 (a) Explain the near and far fields with respect to antenna measurements.  
(b) Define directivity. Give the procedure for the measurement of directivity.
- 7 (a) Write the different modes of wave propagation.  
(b) Explain fading and path loss.
- 8 (a) Write short notes on virtual height and skip distance.  
(b) ( Discuss the energy loss in Ionosphere.

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