Code :R7310405

R7

III B.Tech I Semester(R07) Supplementary Examinations, May 2011
ANTENNAS & WAVE PROPAGATION
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) As related to antennas, Define and explain the following terms.
   i. Beam width.
   ii. Bandwidth.
   iii. Polarization.
   iv. Power gain.
   (b) Calculate the gain of an antenna with a circular aperture of diameter 3 meter at a frequency of 5 GHz.
2. Derive the expression for electric and magnetic field components from short electric dipole.
3. A linear broadside array consists of 16 identical isotropic radiator with spacing $\lambda/2$. Derive an expression and plot the radiation pattern. Also find the directivity and beam width.
4. Derive an expression for radiated electric field strength of a travelling wave radiation of length 'L'.
5. (a) Explain about flat sheet and corner reflector antennas.
   (b) What is retro reflector?
6. (a) What are the types of lens antennas and explain briefly.
   (b) Give the merits and demerits of a lens antennas.
7. (a) Explain the mechanism of wave tilting in ground wave propagation with the help of neat schematic diagram.
   (b) Differentiate between the ground wave propagation and sky wave propagation.
8. (a) With the help of neat diagram derive the expression for the electric field strength at the receiving point due to the space wave propagation.
   (b) List out the disadvantages of space wave propagation.

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