

QP Code : 586900

[Revised Course]

(3 Hours)

[Total Marks : 100]

- N.B. : (1) Question no. 1 is **compulsory**
 (2) Answer **any four** questions from the remaining **six** questions.
 (3) Assume any suitable data wherever required.
 (4) **Figures** to the **right** indicate **full** marks.

1. Answer the following 20
 - (a) Ground interference effects.
 - (b) Polarization and polarization matching factor
 - (c) Explain different types of antenna losses
 - (d) Sky wave propagation
 2. (a) What is the effective area of a half wave dipole operating at 500MHz. 10
 (b) Explain the significance of the term "Effective Area of an Antenna". Derive the relationship between effective area and directivity of any antenna. 10
 3. (a) Derive the array factor of an N- element uniform linear array and hence deduce the condition for which the array will radiate in the broadside and end fire direction 10
 (b) Derive the expression for radiation resistance of an infinitesimal dipole, explain its significance. 10
 4. (a) Draw and explain Yagi antenna. Sketch its radiation pattern. Write the applications of Yagi Antenna. 10
 (b) Explain the different types of horn antennas. Find its directivity and beamwidth. 10
 5. (a) Explain with suitable diagram the working of Log Periodic Antenna. Write its practical applications. 10
 (b) Explain the different components of the ground waves. What are frequency characteristics of ground waves? 10
 6. (a) Explain the principal modes of operation of helical antennas and draw its radiation pattern. 10
 (b) Explain the formation of inversion layer in the troposphere and the phenomenon of duct propagation. Which factors help in the formation of duct? 10
 7. Write notes on 20
 - (a) Ionospheric Propagation
 - (b) Sleeve dipole
 - (c) The equivalent noise temperature of an antenna
 - (d) Microstrip Antenna
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