

12. (a) Explain in detail the radiation from a slot antenna and their feed systems. (16)

Or

- (b) Explain the radiation mechanism of reflector antennas and their feed systems. (16)

13. (a) Derive and plot the radiation from a broadside array of 4 point sources. (16)

Or

- (b) (i) Discuss in detail the concept, design principles and types of phased array. (10)

- (ii) What is the significance of binomial array? (6)

14. (a) (i) Explain the operation and design of a helical Antenna. (10)

- (ii) Explain the procedures involved in the measurement of gain in antennas. (6)

Or

- (b) Explain in detail about log periodic antennas. What is the need for feeding from end with shorter dipoles and the need for transposing the lines? Also discuss the effects of decreasing α . (16)

15. (a) Draw the electron density profile chart of an ionosphere and explain. Also derive an expression for the effective relative dielectric constant of the ionosphere. Explain about reflection and refraction of waves in ionosphere. (16)

Or

- (b) (i) Explain the attenuation characteristics for ground wave propagation. (8)

- (ii) Explain LOS propagation and troposcatter propagation. (8)