
NOTE: All questions are compulsory

Q1. a) Define an Antenna. Can a single antenna act as transmitting antenna as well as receiving antenna? If yes, quote example.

b) Distinguish between antenna bandwidth and antenna beamwidth. Give at least four differences.

c) Distinguish between antenna equivalent circuit and series RLC circuit. Explain with suitable graphs.

d) Calculate FBR of an antenna which radiates 3KW in its most optimum direction and 500 Watts in the opposite direction.

e) Differentiate between Broadside array and ordinary End fire array by comparing various parameters.

(2x5=10)

Q2. a) What is the bandwidth, in percent, for a 220 MHz centre frequency antenna that has 3dB points at 190 MHz and 240 MHz? What is bandwidth ratio? **(2)**

b) Calculate the maximum effective aperture of an antenna which is operating at wavelength of two meters and a directivity of 100. **(1)**

Q3. a) Explain how the radiation pattern for two isotropic point sources having same amplitude and opposite phase can be drawn. **(3)**

b) Find the length and bandwidth between first null for broadside and endfire array given that the directive gain is 30 and the length of array is several half waves. **(3)**

Q4. What is BALUN? Explain the application of BALUNS with suitable example. **(1, 2)**

Q5. a) What is a Yagi - Uda array? Explain its construction and properties with special reference to directivity and bandwidth. **(3)**

b) Why Yagi- Uda antenna is called Super directive antenna? Comment **(1)**

Q6. Write one page note on each of the following:

a) Effect of earth on radiation patterns **(2)**

b) Why impedance matching is required in antenna **(2)**

********ALL THE BEST********