

Exam.Code:0929
Sub. Code: 6911

1129
B.E. (Electronics and Communication Engineering)
Fifth Semester
EC-503: Antennas and Wave Propagation

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following:-
 - a) Efficiency of an antenna in terms of directive & power gain is_____.
 - b) Define Broadside array
 - c) Null to Null beam width of an end fire array is given by_____.
 - d) At 30 MHz, Whip antenna has a length of (a) 2.5m (b) 250m (c) 25m (d) 10m
 - e) Define Optimum working frequency. (5x2)

UNIT - I

- II. a) What is an antenna Impedance? Derive its equation using equivalent circuit model.
- b) An Antenna whose radiation resistance is 300 ohms operates at a frequency of 1 GHz and with a current of 3 A. Find the radiated power. (2x5)
- III. What is Impedance matching? Discuss the types of impedance matching techniques with diagram. (10)
- IV. a) Describe Dolph-Tchebysheff array with suitable diagram.
- b) Design a Yagi-Uda antenna of six elements to provide a gain of 12 dBi, if the operating frequency is 200 MHz. (2x5)

UNIT - II

- V. Discuss the design equations, equivalent circuit and radiation pattern of Ferrite rod antenna with diagram. (10)
- VI. What is Ionospheric Wave Propagation? Discuss the characteristics of D-layer and F1 layer of Ionosphere. (10)
- VII. Find the maximum range of tropospheric transmission for which the height of the transmitting antenna is 100 ft and that of the receiving antenna is 50 ft. Also find the radio horizon distance of transmitting antenna whose height is 80 m. (10)

x-x-x