C 47561

(Pages 2)

Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2008

Electronics and Communication Engineering

EC 2K 602—RADIATION AND PROPAGATION

Time : Three Hours

Maximum : 100 Marks

Answer **all** *questions.*

I. (a) Define (i) Effective height ; (ii) Physical height ; (iii) HPBW ; (iv) FNBW.

(b) State reciprocity theorem for receiving antennas.

(c) State the features of Radiation pattern multiplication principle.

(d) What is an EFA ? Why is it called so ?

(e) Show that Folded dipole element has the same radiation resistance that of simple dipole element.

(f) What are the different types of horn antennas ? Sketch them.

(g) Explain the limitation of Ground wave propagation.

(h) Write and explain the characteristic equations of Ionosphere.

(8 × 5 = 40 marks)

II. (a) (i) Compute the directivity of Isotropic radiator and $\lambda/4$ antenna.

(ii) Obtain the relationship between Gain and Effective area.

Or

(b) Derive an expression for power radiated by an alternating current element.

III. (a) Derive an expression for array factor of an n-element antenna array.

Or

(b) Write technical notes on :

1 Dolph-Tchebyscheff array.

2 Binomial array.

IV. (a) Differentiate :

1 Vantenna from Rhombic antenna.

2 Standing wave antenna from Travelling wave antenna.

Or

(b) Draw a neat sketch of microstrip antenna. Explain its principle of operation. Derive the design equation of Microstrip antenna.

Turn over

V. (a) Describe in detail the characteristics of Groundwaves, Spaceswaves and Skywaves.

Or

(b) Write short notes on :

1 Wave propagation in plasma.

2 Multihop propagation.

(4 × 15 = 60 marks)