Reg. No. : | | | | | | | | | | |

Question Paper Code: 36043

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Sixth Semester

Electronics and Communication Engineering

01UEC603 - ANTENNA AND WAVE PROPAGATION

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define half power beam width.
2. Define beam solid angle.
3. State the principle of pattern multiplication.
4. What is a short dipole?
5. Define duality principle.
6. State Babinet's principle and how it gives rise to the concept of complementary antenna.
7. What are the drawbacks of antenna measurements?
8. Mention the types of feeding structures used for microstrip patch antennas.
9. Define skip distance.
10. What is gyro frequency?

PART - B (5 x 16 = 80 Marks)

11. (a) What are Hertizian dipoles? Derive the electric and magnetic field of Hertizian dipoles. (16)

Or

(b) Derive the expression for electric and magnetic fields of a oscillating current element. (16)

12. (a) Draw radiation pattern for a half Wavelength dipole and explain in detail. (16)

Or

(b) Derive the expression for field pattern of broad side array of two element array. Find the angles of nulls and maxima points. Also draw the radiation pattern. (16)

13. (a) With a neat sketch and explain the slot antenna and its radiation mechanism. (16)

Or

(b) With a neat diagram explain the principle and operation of rectangular horn antenna. Draw the various horn structures. (16)

14. (a) With necessary illustrations explain the radiation characteristics of multi element log periodic antenna and mention its possible applications. (16)

Or

(b) With a neat sketch and explain the construction and operation of helical antenna. (16)

15. (a) Summarize the structure of the ionosphere and explain the phenomena of wave bending introduced by these layers. (16)

Or

(b) Why do we use high frequency waves in sky wave propagation? Explain the mechanism of propagation and its influence by earth's magnetic fields. (16)

———————