Reg. No. :

Question Paper Code: 36403

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. If the radiation resistance of an antenna is 65 Ω and loss resistance is 10 Ω find its efficiency.

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 any two applications of helical antenna.

9. Define skip distance.

10. What is gyro frequency?

11. (a) Derive the expression for electric and magnetic fields of a oscillating current element. (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) (i) Describe the troposphere and explain how ducts can be used for microwave propagation. (8)

(ii) Discuss on the following

(1) Skip distance

(2) Virtual height

(3) Critical frequency (8)

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