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Question Paper Code: 56402

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

Sixth Semester

Electronics and Communication Engineering

15UEC602–ANTENNA AND WAVE PROPAGATION

(Regulation 2015)

Answer ALL questions

Duration: Three hours

Maximum: 100 Marks

Answer ALL questions

PART A - (5 x 1 = 5 Marks)

1. Steradian is a measurement unit of _____ CO1- R
(a) Point angle (b) Linear angle (c) Plane angle (d) Solid angle
2. Which type of wire antennas are also known as dipoles? CO2- R
(a) Linear (b) Loop (c) Helical (d) All of the above
3. Which antennas are renowned as patch antennas especially adopted for space craft applications? CO3- R
(a) Aperture (b) Microstrip (c) Array (d) Lens
4. Which mode of radiation occurs in an helical antenna due to smaller dimensions of helix as compared to a wavelength? CO4- R
(a) Normal (b) Axial (c) Both a and b (d) None of the above
5. Which mode of propagation is adopted in HF antennas? CO5- R
(a) Ionospheric (b) Ground wave (c) Tropospheric (d) All of the above

PART – B (5 x 3= 15Marks)

6. Define directivity and gain of an antenna. CO1- R
7. List the difference between Uniform and non-Uniform array. CO2- R

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|-----|---|--------|
| 8. | List out the applications of aperture antennas | CO3- R |
| 9. | Label the dimensions of helical antenna with neat sketch. | CO4- R |
| 10. | Name the layers of ionosphere. | CO5- R |

PART – C (5 x 16= 80Marks)

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| 11. | (a) Classify various characteristics of an antenna. | CO1- App | (16) |
| | Or | | |
| | (b) Demonstrate the Reciprocity principle. | CO1- App | (16) |
| 12. | (a) Calculate the radiation resistance of a half wave dipole. | CO2- App | (16) |
| | Or | | |
| | (b) Explain in detail about the two element antenna array with different excitations. | CO2- Ana | (16) |
| 13. | (a) Explain in detail about reflector antenna with its different feeding structures. | CO3- U | (16) |
| | Or | | |
| | (b) Explain in detail about horn antenna. | CO3- U | (16) |
| 14. | (a) Discuss in detail about Yagi-Uda antenna. | CO4- U | (16) |
| | Or | | |
| | (b) Explain in detail about log periodic antenna with neat sketch. | CO4- U | (16) |
| 15. | (a) Describe the following | | |
| | (i) Skip distance | CO5-U | (4) |
| | (ii) Virtual height | CO5-U | (4) |
| | (iii) MUF | CO5-U | (4) |
| | (iv) Critical frequency | CO5-U | (4) |
| | Or | | |
| | (b) Discuss about the following | | |
| | (i) Ground wave propagation | CO5-U | (8) |
| | (ii) Tropospheric Propagation | CO5-U | (8) |