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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations December-2021

ANTENNAS & WAVE PROPAGATION

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a An Antenna has a $E(\theta) = \cos\theta \cos 2\theta$ for $0^\circ \leq \theta \leq 90^\circ$. Find HPBW and FNBW. L4 6M
b Explain Front to Back Ratio and Antenna Theorem. L3 6M

OR

- 2 a Explain Antenna Beam Width and Directivity. L3 6M
b Explain Effective Height of Antenna and Antenna Temperature. L3 6M

UNIT-II

- 3 a Write short notes on i) Folded dipole antenna ii) Yagi-Uda array iii) Horn antenna L1 6M
b Discuss about the helical antenna geometry, axial mode of radiation and its applications. L1 6M

OR

- 4 a What are the practical design considerations for Monofilarhelical antenna in normal mode? L1 6M
b Give the applications of helical antennas. L1 6M

UNIT-III

- 5 a Explain the different tolerances in the lens antenna. L1 6M
b Explain the principle of operation of dielectric lens antenna. L1 6M

OR

- 6 a Explain the basic principle of operation in lens antenna & distinguish between different types of lens antenna used in practice. L1 6M
b With a neat sketch explains the constructional features of parabolic reflector and obtain expression for its curved profile. L1 6M

UNIT-IV

- 7 a Show that Directivity of BSA, $L \gg d$ is $D_0 = 2(d/\lambda)$. L1 6M
b Write short notes on i) Array of two point sources ii) uniform linear array. L1 6M

OR

- 8 a A broad side array operating at 10cm wavelength consists of 4 half wave dipole spaced 50 cm each element carries radio frequency current in the same phase and of magnitude 0.5 amps. Calculate the radiated power, half width of major lobe. L1 6M
b Write short notes on broad side and end fire arrays. L1 6M

UNIT-V

- 9 a Explain the following i) Virtual height ii) Skip distance iii) Multi-hop propagation. L1 6M
b What is fading & list different types of fading and explain. L1 6M

OR

- 10 a Discuss the effects of earth's curvature. L1 6M
b Explain the terms i) Critical frequency ii) MUF. L1 6M

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