**18EC604**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **June, 2022** | **Electronics & Communication Engineering** | | |
| **Sixth Semester** | **Antennas & Wave Propagation** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No.1 compulsorily.* | | | (12X1 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |
| *1.Answer the following* | | |  |

a) Write the applications of Antenna CO-1

b) Give the Lorentz-Gauge condition CO-1

c) Define polarization of antenna CO-1

d) Define Half power Beam width of antenna CO-2

e) What is the axial Ratio for Circular polarized waves? CO-2

f) What are the adavanteges of antenna arrays ? CO-2

g) The antenna used for TV signal reception from Satellites? CO-3

h) Calculate the input impedance of Four wire folded dipole antenna CO-3

i) Write the expression for Maximum usable frequency (MUF) CO-4

j) Define Skip distance CO-4

**Unit – I**

**2.a)** Explain about Potential functions using maxwell’s equation approach 5M CO-1

b) Derive the Frii’s Transmission equation 5M CO-1

**(OR)**

**3.** Prove that the Radiation Resistance of half wave dipole is 73Ω. 10M CO-1

**Unit – II**

4.a) Derive the array factor for an N- element uniform linear array 5M CO-2

b) Explain about Broadside array and derive the expressions for HPBW & BWFN 5M CO-2

**(OR)**

5.a) Derive the expressions for HPBW , BWFN for an End Fire Array 5M CO-2

b) Explain about Binomial array and also mention advantages & disadvantages 5M CO-2

**Unit – III**

**6**. a)Explain working principle of Log periodic antenna. Write advantages, disadvantages and

applications. 5M CO-3

b) Explain Rhombic antenna construction and working. Write advantages, disadvantages and

applications. 5M CO-3

**(OR)**

**7.a)** Explain Cassegrain system of Parabolic reflectors. 5M CO-3

b) Explain Slot antenna and derive the input impedance of λ/2 slot antenna. 5M CO-3

**Unit – IV**

8. a) Explain about Ground wave propagation briefly 5M CO-4

b) Derive the expression for Electric field strength of space wave. 5M CO-4

**(OR)**

9 .a) Derive the expression for Refractive index of Ionosphere 5M CO-4

b) Explain about Ionospheric abnormalities in detail 5M CO-4

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