

Roll No.

3216

**B. Tech. 5th Semester (ECE)
Examination – March, 2021**

ELECTROMAGNETIC WAVES

Paper : PCC-ECE- 301-G

Time : Three hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, Selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Write short answer of the following :

- (a) What are Electromagnetic Waves ?
- (b) Define and briefly explain Reflection Coefficient.
- (c) Define Phase Velocity.
- (d) Explain Total Internal Reflection.
- (e) What are Transverse Electromagnetic waves ?
- (f) What is Monopole Antenna ? 2.5 × 6 = 15

UNIT - I

2. Give applications of Transmission lines as impedance matching unit and as circuit elements. 15
3. (a) Explain Admittance Smith Chart. 8
- (b) Describe impedance Transformation on lossless and low loss transmission lines. 7

UNIT - II

4. (a) Describe Maxwell's equations. 10
- (b) Write a short note on Wave Polarization. 5
5. (a) Explain Reflection and Refraction at Dielectric Interface. 8
- (b) Describe the principle of Total Internal Reflection. 7

UNIT - III

6. (a) Compare 2-wire Transmission Lines with Waveguides. 7
- (b) Describe Attenuation in relation with Waveguides. 8
7. What are Rectangular Waveguides ? Describe Modal Propagation in Rectangular Waveguides in detail. 15

UNIT - IV

8. Explain the Radiation mechanism from Hertz dipole and also describe power radiated by it. 15
9. Write short notes on any *two* : 8 + 7 = 15
- (a) Receiving Antenna
- (b) Dipole Antenna
- (c) Radiation Parameters of Antenna