SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | | Total number of pages:[1]
Total number of questions: 06

B.Tech. || ECE|| 4th Sem

Electromagnetic & Antennas

Subject Code: BTEC-403

Paper ID: **Max Marks: 60**

Time allowed: 3 Hrs

Important Instructions:

- **All questions are compulsory.**
- **Assume any missing data**

PART A (2×10)

Q. 1. Short-Answer Questions:

(a) Write down the interpretation of Maxwell's Equations.
(b) What do you mean by Wave Impedance?
(c) Why the impedance matching is required for Transmission Lines.
(d) What is distortion-less condition?
(e) Write down the Free space equation and explain.
(f) What do you mean by duct propagation?
(g) Explain Far field and Near field region.
(h) Define Isotropic- and Directional- antenna and their applications.
(i) What do you mean by the Critical Frequency?
(j) Why antenna is called a reciprocal device?

PART B (8×5)

Q. 2. Deduce the Maxwell's equation for the propagation of waves via Conductor. CO1

OR

State and prove Poynting theorem. CO1

Q. 3. Write a short note on Smith chart and its role to solve transmission line issues. CO2

OR

Explain the propagation of EM waves through Circular waveguide. CO2

Q. 4. Compare Monopole, Half dipole and Full Dipole Antennas. CO3

OR

Discuss the designing parameters of transmitting- and receiving- antenna. CO3

Q. 5. Explain Babinet's principal. Discuss Reflector antenna and its applications. CO4

OR

Analyze the Dolph-Tschebysceff antenna array and its applications. CO4

Q. 6. Explain the structure of Ionosphere and how it helps in radio communication. CO5

OR

Evaluate Free space equation mathematically and discuss its interpretation. CO5