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Reg. No.															

B.Tech. (PT) DEGREE EXAMINATION, DECEMBER 2018

Second Semester

PEC201 – ELECTROMAGNETIC THEORY AND WAVEGUIDES

(For the candidates admitted from the academic year 2007-2008 to 2016-2017)

Time: Three hours Max. Marks: 100

Answer **ALL** Questions

PART – A (10 × 2 = 20 Marks)

1. State Coulomb's law.
2. What are the limitations of Gauss law?
3. Define magnetic flux.
4. What is magnetic flux density?
5. Define pointing vector.
6. Distinguish between field and circuit theory.
7. What are TE waves?
8. Write down the expression for velocity of propagation.
9. Define characteristics impedance.
10. Define attenuation factor.

PART – B (5 × 16 = 80 Marks)

11. a. Construct an expression for electric field intensity at point P due to an electric dipole.

(OR)

b. Explain the concept of divergence theorem with their applications.

12. a. Derive the magnetic field intensity in the different regions of co-axial cable by applying ampere's circuital law.

(OR)

b. Obtain the expression for scalar and vector magnetic potential.

13. a. Derive the expression for displacement current density.

(OR)

b. State and explain the poynting theorem. Give its physical significance.

14. a. Derive the expression for attenuation of TE waves in between parallel plates.

(OR)

b. Derive the expression for wave impedance for TE, TM, TEM wave between a pair of perfectly conducting plane.

15. a. Derive the field configuration, cut off frequency for TE waves in rectangular waveguide.

(OR)

b. Derive the expression for the wave impedance in circular waveguide.

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