RAYALASEEMA UNIVERSITY COLLEGE OF ENGINEERING, KURNOOL

B. Tech. IV Semester End Examinations, December 2021

ELECTROMAGNETIC WAVES AND TRANSMISSION LINES (19APC0408)

(Electronics & Communication Engineering)

Time: 3 Hours | Max. Marks: 70

PART – A **(10 x 2 = 20M)**

(Compulsory Question)

Answer the following

1 a) State Gauss law.
b) Define capacitance.
c) State Ampere's circuital law.
d) Write the two Maxwell's equations for magnetostatic fields.
e) Define boundary conditions of electromagnetic fields.
f) Define uniform plane wave.
g) Define Brewster angle.
h) State power Poynting theorem.
i) Define reflection coefficient of a transmission line.
j) List out the applications of a transmission line.

Part B **(5 × 10 = 50 M)**

(Answer One FULL Question from each unit; All questions carry EQUAL marks)

Unit-I

2 Derive electrostatic field in terms of potential gradient. **10 M**

(OR)

3 Derive the expressions of capacitance and energy stored in a parallel plate capacitor **10 M**

Unit-II

4 Write about inconsistency of Ampere's law. **10 M**

(OR)

5 Explain in detail about magnetic scalar and vector potentials. **10 M**

Unit-III

6 Derive boundary conditions of electromagnetic fields between two dielectric media. **10 M**

(OR)

7 Obtain the relation between **E** and **H** in a uniform plane wave. **10 M**

Unit-IV

8 Write in detail about reflection of plane waves at oblique incidence on a perfect conductor. **10 M**

(OR)

9 Write a short note on critical angle and total internal reflection. **10 M**

Unit-V

10 Derive the expression for input impedance of a lossless transmission line. **10 M**

(OR)

11 Write in detail about single stub matching in a lossless transmission line. **10 M**

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