Roll No. .....

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B. Tech. 5th Semester (ECE) Examination – December, 2022

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 Section. Question number **1** is ***compulsory***. All questions carry equal marks.

1. Define the following : $2.5 \times 6 = 15$

(a) Reflection Coefficient

(b) VSWR

(c) Total internal reflection

(d) Characteristic impedance

(e) Impedance matching

(f) Hertz dipole

SECTION – A

2. (a) Deduce the wave equation for conducting medium. 8

(b) Define and discuss the loss less transmission line. 7

3. Discuss the importance and usage of Smith chart. 15

SECTION – B

4. State and derive the Mexwell's Equations in differential and integral form. 15

5. Discuss the wave propagation in conducting medium. 15

SECTION – C

6. Discuss the concept of plane wave reflection. 15

7. (a) Discuss the TE and TM mode propagation in plane wave guide. 8

(b) Discuss the concept of reflection and refraction in case of dielectric interface. 7

SECTION – D

8. Deduce the expression for power radiated by hertz dipole. 15

9. Define monopole and dipole antenna. Deduce the expression for potential function. 15
