Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech.(ECE) (Sem.–3)

ELECTROMAGNETIC WAVES

Subject Code : BTEC-303-18

M.Code : 76446

Date of Examination: 26-05-2023

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly:

a) Differentiate between reflection and refraction of a plane wave. Explain.

b) Explain how VSWR can be determined using a smith chart.

c) Classify the types of transmission lines.

d) Define propagation constant.

e) Define clearly dominant and degenerate modes with examples.

f) State the significance of smith chart and its features.

g) What is meant by characteristic impedance of transmission line?

h) Define polarization.

i) What is the equation of continuity for steady currents?

j) What are the conditions for a field to be irrotational?

SECTION-B

2. Write and explain Maxwell's equation for static fields.

3. Explain that the electromagnetic wave is transverse in nature.

4. Discuss about lossless and distortionless transmission lines.

5. A rectangular waveguide with dimensions 4cm × 2cm operates at 10 GHz. Find and of mode.

6. Write a short note on wave impedance for free space..

SECTION-C

7. Write a short note on reflection of uniform plane waves.

8. Discuss reflection of electromagnetic waves from a perfect insulator incident obliquely.

9. What is understood by polarization of EM waves? Explain linear, elliptical and circular polarization with appropriate figures.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.