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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE) (2018 Batch) (Sem.-3)

ELECTROMAGNETIC WAVES

Subject Code : BTEC-303-18

M.Code : 76446

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 determining using 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 condition for field to be irrotational?

SECTION-B

- 2) Write and explain Maxwell's equation for static fields.
- 3) Explain the electromagnetic wave is transverse in nature.
- 4) Discuss about lossless and distortionless transmission lines.
- 5) A rectangular waveguide with dimensions $4\text{cm} \times 2\text{cm}$ operates at 10 GHz. Find f_c and λ_c of TE_{10} mode.
- 6) Write short note on wave impedance for free space.

SECTION-C

- 7) Write a short note on reflection of uniform plane wave.
- 8) Discuss reflection of electromagnetic wave 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.