P5147

BE/Insem - 553

B.E. (E & TC) (Semester - I)

MICROWAVE ENGINEERING

(2012 Pattern)

Time : 1 Hour]   *[Max. Marks : 30*

Instructions to the candidates:

1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q5 or Q.6.*

2) *Neat Diagrams must be drawn wherever required.*

3) *Figures to the right side indicate full marks.*

4) *Use of calculator is allowed.*

5) *Assume suitable data if necessary.*

Q1) a) Explain the following terms related to the rectangular waveguide.   **[6]**

       i)   Cut off wavelength

       ii)   Dominant Mode

       iii)   Wave Impedance

   b) What is Cavity Resonator? Draw and explain the re-entrant cavity resonator.**[4]**

<div align="center">OR</div>

Q2) a) A rectangular waveguide has dimensions 4 x 2 cms. Determine the guide wavelength, phase velocity and phase constant β at a wavelength of 6cms for the dominant mode.   **[6]**

   b) Write a short note on :   **[4]**

       i)   Advantages and applications of microwave.

Q3) a) What is a directional coupler? Draw and explain the operation two hole directional coupler.   **[6]**

   b) Explain the operation of circulator using two magic tees.   **[4]**

<div align="right">***P.T.O.***</div>

OR

Q4) a) With the help of schematic, explain the working principle of an Isolator.**[6]**

b) Give the difference between Strip lines and Microstrip lines. **[4]**

Q5) a) Explain the following terms **[6]**

i) Intrinsic Impedance

ii) Wave Impedance and

iii) Characteristics Impedance.

b) Explain the construction and operation of Gyrator. **[4]**

OR

Q6) a) A signal of power 20 mw is fed into the one of the collinear ports of the H-plane Tee. Determine the powers at the remaining ports when other ports are terminated by means of matched loads. **[6]**

b) State and explain the need of network and circuit concept for microwave analysis. **[4]**

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