Total No. of Questions : 6]

SEAT No. : ____

P5147

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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]**

OR

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]**

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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]**