

Code: EC6T3

III B.Tech - II Semester – Regular Examinations – May 2017

**MICROWAVE ENGINEERING
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) List some microwave oscillators and Amplifiers.
- b) Mention any four applications at Microwave Frequencies.
- c) What is the meaning of O-Type Devices?
- d) For an N-port Microwave what will be the number of Reflection and Transmission coefficients?
- e) At microwave Frequencies does free space acts as an open circuits or not? Why?
- f) Define the term Tuning for a cavity.
- g) What does Quality factor of a microwave cavity tells us?
- h) What is the Equivalent circuit for Tunnel Diode?
- i) Mention the applications of PIN diode.
- j) Why Isolator is used in the Microwave Bench setup?
- k) Define VSWR.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain the working procedure of Helix Travelling wave Tube with neat diagrams. 10 M
- b) What is the need for multi cavity Klystron explain with its diagrams? 6 M
3. a) Describe the working mechanism in Magic-Tee 8 M
- b) Is it possible to have a three port Network with all ports matched, symmetric and reciprocal? If not prove it. 8 M
4. a) Illustrate the working principle for Two-hole directional Coupler and give the relation among coupling coefficient, isolation and directivity. 10 M
- b) What are different tuning mechanisms for Cavity Resonators? 6 M
5. a) Explain different modes of operation in Gunn Diode and its characteristics 10 M
- b) Give the Equivalent Circuit for Tunnel diodes also mention its applications. 6 M

6. a) Give the experimental procedure for measuring unknown Impedance over the bench Set up. 8 M

b) Explain different blocks and features of microwave Bench. 8 M