

28/10/13



B.E Degree Examination NOV/DEC 2013
EC 385 RF AND MICROWAVE ENGINEERING
VI Semester Electronics and Communication Engineering
Regulation :2004

Duration :3 Hours **Part A (10X2 =20 Marks)** **Max Marks:100**

1. Sketch the electric flux lines in a strip line and a microstripline
2. Write the S matrix of a 3dB attenuator
3. Outline the basic principle of working of a phase shifter
4. Give the significance of irises in impedance matching
5. What are the applications of PIN diode
6. How stability of a transistor is determined at microwave frequency
7. List the high frequency effects which are detrimental to the operation of conventional tubes
8. Bring out the significance of slow wave structures in the amplification process of microwaves
9. What is the principle behind dielectric constant measurement?
10. Specify the role of slotted line in microwave measurements

Part B (5X16 =80 Marks)

11.i) With suitable mathematical substantiation explain the velocity modulation and bunching process in a two cavity klystron amplifier

12.a) i) Explain the working of a Rotary vane attenuator (8)

ii) With neat diagram explain the working of a faraday rotation isolator (8)

(OR)

12 b) i) Give the construction and special features of a) matched termination and b) short circuit plunger c) slide screw tuners (10)

ii) Give the equivalent circuit representation of a series TEE and shunt TEE and explain (6)

13a) Explain the working of a directional coupler and derive the S-matrix (8)

ii) State and explain the properties of S-matrix (8)

(OR)

13 b) i) Describe the PI mode of oscillations in a MAGNETRON (12)

ii) What is meant by strapping in Magnetron and why is it done? (4)

14a) Explain with circuits the working of a parametric up converter and down converter

(OR)

14b) i) Describe the various modes of operation in GUNN diode

15a) i) Describe the Bolometer and power meter method of power measurement (12)

ii) Outline the principle of impedance measurement (4)

(OR)

15b) i) Describe the Q factor measurement techniques (10)

ii) Give the feature of a Spectrum analyzer (6)