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B.E Degree Examination Apr/May 2014

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. State the advantages of planar transmission lines over conventional lines
2. list the industrial and medical applications of microwaves
3. Specify the features of a quarter wave transformer.
4. Give the significance of irises in impedance matching
5. List the high frequency effects of conventional tubes
6. Bring out the significance of helical structure in the TWTs
7. What are the applications of PIN diode
8. Define GUNN effect
9. Differentiate –Scalar and Vector network analyzers
10. What is the principle behind dielectric constant measurement?

Part B (5X16 =80 Marks)

11.i) Explain the working of a directional coupler and derive the S-matrix **(8)**

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

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 a short circuit plunger **(8)**

ii) Give the design equations of band stop filter and discuss the variation of attenuation in

pass band region **(8)**

13a) With suitable mathematical substantiation explain the velocity modulation and bunching process in a two cavity klystron amplifier

(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)Derive the Manley-Rowe relation and give their physical significance

(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 electronic techniques of microwave frequency measurement. **(10)**

ii)Give the constructional feature of a slotted line **(6)**