(Pages : 2) **1103**

Reg. No. : .....

Name : .....

Eighth Semester B.Tech. Degree Examination, April 2014
(2008 Scheme)
08.825 : MICROWAVE DEVICES AND CIRCUITS (T)

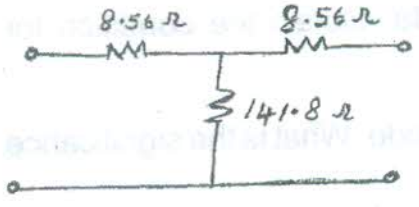
Time : 3 Hours Max. Marks : 100

Instruction : *Provide Smith chart to students on their request.*

PART – A

Answer **all** questions. **Each** question carries **4** marks :

1. Find the S-parameters of the circuit shown in figure :



2. Explain the operation of MESFET.

3. Explain how impedance matching is done using quarter wave transformer.

4. Explain the principle of double stub matching.

5. What are the fundamental differences between a transferred electron device and a transistor ?

6. Explain the operation of a TRAPATT diode.

7. Differentiate between available power gain and transducer power gain.

8. Explain the differences between a stripline and microstripline.

9. Write short notes on print inductors.

10. Explain how resonators are implemented is MIC's. **(10×4=40 Marks)**

P.T.O.

PART – B

Answer **any two** questions from **each** module. **Each** question carries **10** marks :

MODULE – I

11. Explain the importance of scattering parameters. Prove the symmetry and unitary property of scattering parameters.

12. Explain the procedure for defining equivalent voltage and current for waveguide modes.

13. For a load impedance $Z_L = 15 + J10\Omega$, design two single stub shunt tuning networks to match the load to a 50Ω line. Assume that the load is matched at 2Ghz and consists of a resistor and inductor in series.

MODULE – II

14. Explain the two valley model theory of Gunn diode. Obtain the condition for negative resistance.

15. Explain the different modes of operation of a Gunn diode. What is the significance of the LSA mode of operation ?

16. Explain the steps involved in the design of one port negative resistance oscillator.

MODULE – III

17. What do you mean by a coupled stripline ? Explain the even and odd mode of operation of a coupled stripline.

18. Explain how capacitors are implemented in microwave integrated circuits.

19. Explain about the different types of discontinuities in microwave integrated circuits.

(6×10=60 Marks)