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D – 3528

Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, December 2017
(2008 Scheme)
08.825 : MICROWAVE DEVICES AND CIRCUITS (T)**

Time : 3 Hours

Max. Marks : 100

Instruction : Provide Smith Chart to students on request.

PART – A

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

1. What is the difference between Gunn diode and conventional diodes ?
2. Define reflection coefficient.
3. What is impedance matrix ?
4. Distinguish between lumped and distributed elements. Give example for each.
5. Why are FET's preferred to bipolar transistor at high frequencies ?
6. What is transferred electron effect ?
7. Define insertion loss.
8. What is the purpose of matching circuits ?
9. What are the factors reducing efficiency of IMPATT diode ?
10. Mention plasma formation in TRAPATT diode.

PART – B

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

Module – I

11. Describe the construction and working principle of MESFET and biasing circuits used for it.
12. Explain the concept of N port scattering matrix. Discuss the properties of scattering matrix.

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13. Explain the principle and use of quarter wave transformer. A load having impedance of 140 ohms is to be connected to a line of impedance 100 ohms by a quarter wave matching transformer. Find the impedance of the matching transformer.

Module – II

14. With reference to RF transistor amplifiers, discuss the considerations of gain and stability.
15. Explain Gunn effect and the different modes of operation of Gunn diode.
16. Explain the different structures and principle of operation of IMPATT diode.

Module – III

17. With neat diagrams, explain the working of microstrip resonators.
 18. Explain the principle of microwave attenuators and limiters.
 19. Design a coupled microstrip bandpass filter having response characteristics with passband ripple of 0.1 dB between the frequencies 9.08 GHz and 11.03 GHz. The 20 dB minimum attenuation occurs at 11.33 GHz.
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