F 3346 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Seventh Semester

Branch : Electronics and Communication Engineering

EC 010 703—MICROWAVE ENGINEERING (EC)

(New Scheme—2010 Admission onwards—Regular/Supplementary)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. Write down any *five* IEEE microwave frequency bands.
2. Write down the significance of lead inductances in conventional vacuum tubes at microwave frequencies.
3. Name any four important semiconductor microwave devices.
4. Write down the significance of VSWR on a transmission line.
5. Why microstrip line is popular among planar transmission lines ?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. Explain the division of power among various arms of a series Tee junction.
7. Why a two-cavity Klystron is not preferred to a reflex Klystron as an oscillator ?
8. Draw and explain the characteristics of a tunnel diode.
9. Explain the uses of a network analyser.
10. Write down the advantages and disadvantages of planar transmission lines.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each question carries 12 *marks.*

11. Derive the relation between ABCD and Y parameters and express Y parameters in terms of ABCD parameters.

Or

12. Explain a magic Tee in detail and write down its S matrix.

Turn over

13. Explain the constructional details of an eight cavity magnetron and define cut-off magnetic field.

Or

14. Define an expression for the transit time in the drift space of a two cavity Klystron amplifier.

15. Draw the circuit of a Gunn diode oscillator circuit and explain its advantages. Comment on its performance parameters like power output and frequency.

Or

16. Explain the application of a PIN diode as a switch with the help of relevant diagrams.

17. Explain the method of measuring impedance using a slotted line, with relevant theory.

Or

18. Draw and explain the experimental set up used for VSWR measurement.

19. Distinguish between thin and thick film technologies. Describe the fabrication process of hybrid and monolithic MIC's.

Or

20. Discuss the advantages and disadvantages of microstrip lines over conventional transmission lines.

(5 × 12 = 60 marks)