Reg. No. : | | | | | | | | | | |

Question Paper Code: 47403

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Seventh Semester

Electronics and Communication Engineering

14UEC703 - MICROWAVE ENGINEERING

(Regulation 2014)

Duration: 1:45 hour Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. Why isolators are called uniline?
2. Mention the reason for using S-matrix for microwave analysis.
3. What are the factors reducing efficiency of IMPATT diode?
4. Define negative resistance.
5. Why magnetron is called as cross filed device?
6. Compare TWTA and klystron amplifier.
7. Outline the features of coplanar strip line and microstrip line?
8. Write about diffusion and ion implantation process in fabrication.
9. List the different types of impedance measurement methods.
10. A wave guide termination with a VSWR of 1.5 is used to dissipate 150 watts of power. Determine the reflected power.
11. What are hybrid couplers?
12. What is Two-valley model?

13. Compare O-type tube and M-type tube

14. List the advantages of MMIC's

15. What are the errors in impedance measurement?

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. The S-parameters of a two-port network are given by

$S_{11} = 0.2\angle 90°$ $S_{22} = 0.2 \angle 90°$

$S_{12} = 0.5 \angle 90°$ $S_{21} = 0.5 \angle 0°$

(i) Determine whether the network is lossy or not.

(ii) Is the network symmetrical and reciprocal? Find the insertion loss of network. (10)

17. Explain the operating principle of a Gunn diode. Describe its domain formation and various modes of operations. (10)

18. Explain the π mode of Oscillations in a Magnetron and derive the Hull cut-off equations of a Magnetron. (10)

19. Explain the various stages involved in Monolithic Microwave Integrated Circuits technology. (10)

20. Explain the impedance measurement technique using slotted line and reflectometer. (10)