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

Question Paper Code: 45404

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

Third Semester

Electronics and Communication Engineering

14UEC504- TRANSMISSION LINES AND WAVEGUIIDES

(Regulation 2014)

Duration: 1:45 hour Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. Define Decibel.
2. Define reflection coefficient and write its formula.
3. A line with characteristic impedance of 678.878- j 143.87 is terminated in 200 Ω resistor. Determine reflection coefficient.
4. Define phase velocity.
5. What is the ladder structure of the filter network?
6. Define SWR.
7. Write Maxwell's equations.
8. Distinguish between TE and TM waves.
9. Mention the application of rectangular waveguide.
10. Define resonant cavities.
11. Draw the frequency response characteristics of constant K low pass filter.
12. List the advantages of *m* derived filter.
13. List any two advantages of lumped loading.
14. Define deflection coefficient.

15. What is need for smith chart?

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. Derive the current and voltage ratio as exponentials propagation constant. (10)

17. Derive the general transmission line equation for voltage and current at any point on a line. (10)

18. A transmission line has a characteristic impedance of 300 Ω and terminated in a load $Z_L = 150 + j150\ \Omega$. Find the following using smith chart.

    (1) VSWR.

    (2) Input impedance at a distance 0.1λ from the load.

    (3) Input admittance from $0.1\ \lambda$

    (4) Position of first voltage minimum and maximum from the load. (10)

19. Derive the field equations of TM waves between parallel planes. (10)

20. What is meant by cavity resonator? Derive the expression for the resonant frequency of the rectangular cavity resonator. . (10)