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Question Paper Code: 35044

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fifth Semester

Electronics and Communication Engineering

01UEC504 - TRANSMISSION LINES AND WAVEGUIDES

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Draw the frequency response characteristics of constant K low pass filter.
2. List the advantages of m derived filter.
3. List any two advantages of lumped loading.
4. Define deflection coefficient.
5. What is need for smith chart?
6. Define SWR.
7. Write Maxwell's equations.
8. Mention the characteristics of TEM wave.
9. List the applications of cavity resonator.
10. Define resonant cavities.

PART - B (5 x 16 = 80 Marks)

11. (a) Derive the characteristic impedance and propagation constant of a symmetrical T-Network.

(16)

Or

- (b) Design m-derived LPF, having a $f_c = 5000\text{Hz}$ and a design impedance of 600Ω . The frequency of infinite attenuation is $1.25 f_c$. (16)
12. (a) A transmission line has $Z_0 = 75 \Omega$ is connected to a 100Ω resistive load. Calculate the voltage reflection coefficient at the load and SWR. (16)

Or

- (b) Derive the general transmission line equation for voltage and current at any point on a line. (16)
13. (a) (i) Discuss the various parameters of open wire and coaxial line at radio frequency. (8)
(ii) Explain about smith chart and its application. (8)

Or

- (b) Derive the expression for the input impedance of a dissipation line. (16)
14. (a) (i) Derive the field expression of TM waves guided by a parallel conducting plane. (8)
(ii) Discriminate the characteristics of TEM waves. (8)

Or

- (b) Derive the expression for E and H fields, if electromagnetic wave propagates in Z-direction between two parallel plates. (16)
15. (a) Derive the field expression of TM wave propagation in rectangular waveguide stating the necessary assumption. (16)

Or

- (b) Discuss in detail about attenuation of TE mode in cylindrical waveguide. (16)
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