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Question Paper Code: 55402

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Electronics and Communication Engineering

15UEC502 - TRANSMISSION LINES AND WAVEGUIDES

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. When the load impedance is not equal to characteristic impedance of transmission line _____ takes place. CO1- R
(a) Insertion (b) Reflection (c) both a and b (d) None of these
2. One Neper is equal to CO1- R
(a) 9.686 db (b) 8.686 db (c) 7.686 (d) 8.565
3. A line terminated in its characteristic impedance has no standing waves and thus no nodes is _____ line CO2-R
(a) Distorted (b) Transmission (c) Smooth (d) None of the above
4. In loading attenuation may be reduced by reducing CO2-R
(a) inductance (b) capacitance
(c) Impedance (d) None of the above
5. The skin effect is function of CO3-R
(a) Frequency (b) Permeability (c) Conductivity (d) All of these
6. Smith chart is based on the polar plot of CO3-R
(a) Reactance (b) Voltage (c) Current (d) Voltage reflection coefficient
7. The velocity with which the energy propagates along a guide is called CO4-R
(a) Group velocity (b) Phase velocity (c) Space velocity (d) none of these

8. There is a component of E in the direction of propagation (E_z) but no component of H in this direction. such waves are CO4-R
- (a) TE wave (b) TM wave (c) TEM wave (d) Quasi TM wave
9. An example of guided wave is CO5-R
- (a) Copper wire (b) Coaxial line
(c) Waves on earth surface (d) All of the above
10. A Wave guide acts as CO5-R
- (a) Low pass filter (b) High pass filter
(c) Band pass filter (d) Band reject filter

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Design an m derived LPF having cut off frequency= 1 KHz. Design impedance of 400Ω and resonant frequency 1100 Hz. CO1- App (8)
12. Explain the concept of transmission line as cascaded T section with mathematical expression. CO2- U (8)
13. Derive the expression for voltage and currents on dissipation less line along with line constant for zero dissipation. CO3- U (8)
14. Explain the behavior of electromagnetic waves between parallel planes using maxwell's equation. CO4- U (8)
15. Derive the expression for TM waves in rectangular waveguides. CO5- U (8)