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Question Paper Code: 55402

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Fifth Semester

Electronics and Communication Engineering

15UEC502 - TRANSMISSION LINES AND WAVEGUIDES

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- One Neper is equal to
(a) 9.686 db (b) 8.686 db (c) 7.686 (d) 8.565
- Choose a correct transmission line parameter
(a) Ampere (b) Decibel (c) Conductance (d) Hertz
- One Neper equal to
(a) 9.328 db (b) 1.632 db (c) -1.414 db (d) 8.686 db
- Dominant mode for TE and TM waves
(a) TE₁₀ & TM₁₀ (b) TE₁₄ & TM₁₄
(c) TE₁₆ & TM₁₆ (d) TE₂₂ & TM₂₂
- The frequency at which the wave motion ceases
(a) Flat Line (b) Zero frequency
(c) Attenuation frequency (d) Cut-off frequency

PART - B (5 x 3 = 15 Marks)

- Define Neper.
- Define an infinite line.
- Define – Standing Wave Ratio?

9. What is a TEM wave or principal wave?
10. What are the characteristics of TEM waves?

PART - C (5 x 16 = 80 Marks)

11. (a) Explain the operation and design of constant k low pass and high pass filter. (16)

Or

- (b) Discuss the characteristic impedance of symmetrical T-networks. (16)

12. (a) Explain (i) the infinite line (ii) wavelength (iii) propagation (iv) Distortion line. (16)

Or

- (b) Explain in detail about (i) standing wave (ii) reflection loss. (16)

13. (a) Explain single stub matching on a line. Deduce the expression for the length and location of single stub tuner for impedance matching. (16)

Or

- (b) Elaborate various parameters of open-wire and co-axial lines at radio frequency and for high frequency propagation. (16)

14. (a) Explain about the transmission of TM waves between Parallel planes. (16)

Or

- (b) Explain about the transmission of TE waves between Parallel planes. (16)

15. (a) Explain the transmission of TM waves in rectangular waveguide with neat diagram and derivation. (16)

Or

- (b) Derive the Q-factor of a rectangular cavity resonator for TE mode. (16)
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