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

Question Paper Code: 45404

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

Fifth Semester

Electronics and Communication Engineering

14UEC504 - TRANSMISSION LINES AND WAVEGUIDES

(Regulation 2014)

(Smith chart may be permitted)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which stands for *dB* relative level?

   (a) *dBrn* (b) *dBa* (c) *dBr* (d) *dBx*

2. One decibel equals to

   (a) 5.356*N* (b) 8.686*N* (c) 7.635*N* (d) None of these

3. A transmission line is terminated in a load equal to its characteristic impedance. The reflection coefficient is

   (a) plus one (b) minus one (c) zero (d) infinity

4. A ____band is the range of frequencies or wavelengths that can pass through a filter without being attenuated.

   (a) Pass (b)Band (c) Base (d) Low

5. Reflection Coefficient K=_____Voltage at load /Incident voltage at the load.

   (a) Reflected (b) Incident (c) Reflection (d) Inflection

6. The distance the wave travels along the line while the phase angle is changing through ____ radians is called a wavelength.

(a) 1 (b) 2 (c) 2.5 (d) 1.5

7. Assumptions for the analysis of the performance of the radio frequency Line, leakage conductance G is

(a) 0.5 (b) 0 (c) 2.5 (d) 1.5

8. Dominant mode means

(a) highest cut-off frequency (b) lowest cut-off wavelength
(c) guide wavelength (d) lowest cut-off frequency

9. Dominant mode in circular cavity resonator is

(a) TM_{010} (b) TM_{111} (c) TM_{101} (d) TM_{100}

10. Principal mode is

(a) TE mode (b) TM mode (c) TEM mode (d) None

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Design a T-type prototype band pass filter. (8)

12. A transmission line has the following primary constants measured per *km*, R =10.15 Ω, L = 3.93 mH, C = 0.00797μF, G = 0.29μmho. Determine Z_0 and propagation constant at a frequency of 796H_z. Also calculate at the sending end if the line is terminated in its characteristic impedance. (8)

13. Derive the expression for the field strength for TM waves between Parallel plates propagating in Z direction. (8)

14. Derive the field component of the wave propagating between parallel planes. (8)

15. Obtain the electromagnetic field equations for TE waves in rectangular waveguides. (8)