MCQs
Microwave Engineering

Q1 _____provides us with ration of voltage to current in a transmission line

1. Characteristic Impudence
2. Telegrapher Equation
3. Standing Wave ratio
4. None of above

Q2 Which one of the following statements is correct ? The wavelength of a wave propagating in a wave guide is

(A) smaller than the free space wavelength
(B) greater than the free space wavelength
(C) directly proportional to the group velocity
(D) inversely proportional to the phase velocity

Q3 In case the characteristic impedance of the line is equal to the load impedance

1. all the energy will pass to the earth
2. all the energy will be lost in transmission losses
3. the system will resonate badly
4. all the energy sent will be absorbed by the load.

Q4 In a lossless medium the intrinsic impedance η = 60 π and μ_r = 1. What is the value of the dielectric constant ε_r ?

(A) 2   (B) 1
(C) 4   (D) 8

Q5 Transmission lines link are

1. service points to consumer premises
2. microwave source to receiving end station.
3. receiving end station to distribution transformer
4. distribution transformer to consumer premises

Q6 Which one of the following is the correct expression for the propagation constant in a transmission line ?

(A) $(R - j\omega L)(G - j\omega C)$

(B) $\sqrt{\dfrac{(R - j\omega L)}{(G - j\omega C)}}$

(C) $\sqrt{\dfrac{(R + j\omega L)}{(G + j\omega C)}}$

(D) $\sqrt{(R + j\omega L)(G + j\omega C)}$

Q7 The reflection coefficient of an open-circuited line is

1. 1
2. 0.5
3. -1
4. Zero.

Q 8 What is the attenuation constant α for distortion less transmission line ?

(A) $\alpha \neq 0$

(B) $\alpha = R\sqrt{\dfrac{C}{L}}$

(C) $\alpha = R\sqrt{\dfrac{L}{C}}$

(D) $\alpha = \sqrt{\dfrac{RL}{C}}$

Q 9 A cable or a wire is considered as a transmission line if its length is _____ of the wavelength of the signal travelling through it.

1. Greater than 1/10
2. Less than 1/10
3. Greater than 1/5
4. Less than 1/5

Q 10 A 50 Ω distortionless transmission line has a capacitance of 10^{-10} f/m. What is the inductance per meter ?

(A) 0.25 µH   (B) 500 µH
(C) 5000 µH   (D) 50 µH

Q 11 The real part of the propagation constant shows:

(A) Variation of voltage and current on basic unit.

(B) Variation of phase shift/position of voltage.

(C) Reduction in voltage, current values of signal amplitude.

(D) Reduction of only voltage amplitude.

Q12 What does the standing wave ratio (SWR) of unity imply ?
(A) Transmission line is open circuited
(B) Transmission line is short circuited
(C) Transmission line's characteristic impedance is equal to load
Impedance
(D)None of Above

Q13 In a transmission line terminated by characteristic impedance, Zo

(A) There is no reflection of the incident wave.

(B) The reflection is maximum due to termination.

(C) There are a large number of maximum and minimum on the line.

(D) The incident current is zero for any applied signal.

Q12 A transmission line has R, L, G and C distributed parameters per unit length of the line, γ is the propagation constant of the lines. Which expression gives the characteristic impedance of the line ?

(A) $\dfrac{\gamma}{R + j\omega L}$

(B) $\dfrac{R + j\omega L}{\gamma}$

(C) $\dfrac{G + j\omega C}{\gamma}$

(D) $\sqrt{\dfrac{G + j\omega C}{R + j\omega L}}$

Q13 Transmission lines facilitate _____propagation of energy.

1. Guided
2. Unguided
3. None of these
4. Cannot say

Q14 The characteristic impedance of a transmission line can increase with the increase in

1. resistance per unit length
2. conductance per unit length
3. capacitance per unit length
4. inductance per unit length
Which of these statements are correct ?

(A) 1 and 2   (B) 2 and 3
(C) 1 and 4   (D) 3 and 4

Q1 5 A transmission line is specified in terms of _____ .

1. *R, G,L*
2. *G, L,C*
3. *R, G, L,C*
4. None of these

Q16 In case of open circuit transmission lines the reflection coefficient is

1. 1
2. 0.5
3. -1
4. Zero

Q17 In a microstrip line, there is _____metal strip over the substrate.

1. A thin
2. A thick
3. No
4. None of these

Q18 In case the characteristic impedance of the line is equal to the load impedance

1. all the energy will pass to the earth
2. all the energy will be lost in transmission losses
3. the system will resonate badly
4. all the energy sent will be absorbed by the load.

Q19 For a properly terminated line

1. ZR=ZO
2. Z/R > ZO
3. ZR < ZO
4. ZR =Z0 = 0.

Q 20 Voltage reflection coefficient is the ratio of _____ wave to _____ wave.

1. Incident, reflected
2. Reflected, incident
3. Incident, absorbed
4. Absorbed, incident

Q21 The reflection coefficient for a short circuit line is

(A) 1
(B) Zero
(C) 0.5

Q22 Zo gives us a relation between _____ to _____

1. Current , Voltage
2. Voltage , Current
3. SWR to Reflection Coefficient
4. None of above