

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

II B.Tech. II Sem., II Mid-Term Examinations, April – 2014

ELECTRO MAGNETIC THEORY AND TRANSMISSION LINES

Objective Exam

Name: _____ Hall Ticket No.

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

- Attenuation constant (α) for a free space is []
A) 1 B) 3 C) 0 D) ∞
- For a plane wave propagating in a free space what must be the relationship between v_p and v_g and c []
A) $v_p > c > v_g$ B) $v_p < c < v_g$ C) $v_p = c = v_g$ D) $v_p < v_g < c$
- If $E = (x + iy)e^{-j\beta z}$ then the wave is said to be []
A) Circularly polarized B) Elliptically polarized C) Linearly polarized D) All of the above
- Uniform plane wave is
A) Longitudinal B) Transverse in nature
C) Neither transverse nor longitudinal D) X- directed
- A plane wave travelling in a free space has an average pointing vector of 5 W/m^2 . Then what is the magnitude of E []
A) 61.37 V/m B) 60.26 V/m C) 59 V/m D) 58 V/m
- Characteristic impedance of a lossless Transmission line are []
A) $\sqrt{\frac{L}{C}}$ B) $\sqrt{\frac{C}{L}}$ C) \sqrt{LC} D) $\sqrt{\frac{1}{LC}}$
- Condition for a variable C for a minimum attenuation is []
A) LG/R B) R/LG C) L/GR D) R/LG
- When VSWR is 3 then the reflection co-efficient will be []
A) $1/4$ B) $1/3$ C) 1 D) $1/2$
- A quarter wave impedance transformer is terminated by a short circuit. What would be the input impedance []
A) Z_0 B) 0 C) ∞ D) $\sqrt{Z_0}$
- $Z_L = 200\Omega$ and it is desired that $Z_i = 50\Omega$ Then Quarter wave transformer should have a characteristic impedance Z_0 a []
A) 100 Ω B) 40 Ω C) 1000 Ω D) 4 Ω

Cont.....2

II Fill in the blanks:

11. The term $\frac{\sigma}{\omega\epsilon}$ is called _____ of a dielectric
12. The intrinsic impedance for a perfect dielectric is _____
13. Transmission co-efficient (τ) is given by _____
14. A stub is a _____
15. The velocity of EM in a free space is 3×10^8 m/s then the velocity in a medium with ϵ_r is 4.5 and μ_r is 2 will be _____
16. The secondary constants of a Transmission line are _____
17. Relation between Load impedance Z_L , Reflection co-efficient K and Characteristic impedance Z_0 is _____
18. Range of Reflection co-efficient is _____
19. For first quarter wave length Short circuit line acts as a _____ and Open circuit line acts as a _____
20. In an Open circuit load the input impedance is _____

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1. Uniform plane wave is []
A) Longitudinal B) Transverse in nature
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A) 61.37 V/m B) 60.26 V/m C) 59 V/m D) 58 V/m
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4. Condition for a variable C for a minimum attenuation is []
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5. When VSWR is 3 then the reflection co-efficient will be []
A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) 1 D) $\frac{1}{2}$
6. A quarter wave impedance transformer is terminated by a short circuit. What would be the input impedance []
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7. $Z_L=200\Omega$ and it is desired that $Z_i=50\Omega$ Then Quarter wave transformer should have a characteristic impedance Z_0 a []
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10. If $E=(x+iy)e^{-j\beta z}$ then the wave is said to be []
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19. The intrinsic impedance for a perfect dielectric is _____
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