

Antenna Laboratory 2 Multiple Choice Test

Student's name: _____

Total points: _____

1. A wave front is a locus of points with the same ____?
☐ Amplitude ☐ Frequency ☐ Phase ☐ All of the above.
2. Power density is termed as ____ power per unit area?
☐ Reflected ☐ Refracted ☐ Radiated ☐ Diffracted
3. Is it recommended to operate a dipole antenna of length λ at integer multiples of λ ?
☐ Yes ☐ No
4. Which of these claims are true?
☐ Resonance means the antenna impedance does not have a reactive component
☐ At a length of close to 0.5λ a dipole is in resonance.
☐ The resonant length of a dipole depends on the thickness of the wire
☐ None of the above.
5. Which of these defines the angular distance between two points on each side of the major lobe where the radiation drops to zero?
☐ Half power beam width (HPBW)
☐ First null beam width (FNBW)
☐ Side lobe level (SLL)
☐ Front to back ratio (FBR)
6. Is a TEM supported in a hollow conductor waveguide?
☐ Yes ☐ No
7. The dominant mode of a rectangular waveguide with $b > a$ is:
☐ TE_{10} ☐ TE_{01} ☐ TM_{10} ☐ TM_{01}
8. A waveguide behaves similar to:
☐ a low-pass filter ☐ a high-pass filter ☐ a band-pass filter ☐ none of the others
9. TM_{01} mode in a rectangular perfect metallic waveguide is:
☐ a propagating mode
☐ an evanescent mode
☐ non-existent mode
☐ non of the above

10. The polarization of a pyramidal horn antenna is:

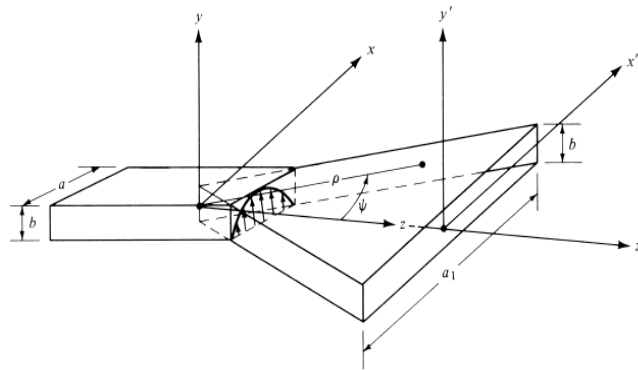
- ☐ linear ☐ circular ☐ elliptical ☐ None of the others

11. What is true for a horn antenna?

- ☐ The horn antenna is omnidirectional
☐ The horn antenna is a directive antenna
☐ The horn antenna has less gain than a half wavelength dipole antenna
☐ The horn antenna has more gain than a half wavelength dipole antenna

12. What type of horn antenna configuration is the following:

- ☐ Pyramidal
☐ H-plane
☐ E-plane
☐ Conical



13. η , the *intrinsic impedance* for free space is:

- ☐ $\sqrt{\frac{\epsilon_0}{\mu_0}}$ ☐ 377 Ω ☐ 120 π Ω ☐ 270 m Ω

14. What is the main function of the flaring with Horn antennas?

- ☐ To enhance the radiated power
☐ To match the impedance between the waveguide and the free space impedances
☐ To increase the directivity
☐ To reduce reflections

15. In which of the following bands does the Horn antenna generally operate?

- ☐ HF and VHF ☐ UHF and LF ☐ UHF and SHF ☐ LF and VHF

16. The smaller the flare angle, the ____ is the directivity and ____ is the beam width

- ☐ higher, bigger ☐ higher, smaller ☐ smaller, higher ☐ smaller, smaller