

## 15. REVIEW QUESTIONS

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1. What is a Smith chart? Describe its important features.
2. The upper part of the Smith chart represents (mark correct answer):
  - (a) Impedances with positive imaginary terms or admittances with positive imaginary terms.
  - (b) Impedances with positive imaginary terms or admittances with negative imaginary terms.
  - (c) Impedances with negative imaginary terms or admittances with negative imaginary terms.
3. What is the reflection coefficient at the center of the Smith chart?
4. Standing wave ratios are marked on the Smith chart on the line of real normalized impedance. *T/F*.
5. What do infinite and zero impedances represent on the Smith chart? Where are these points?
6. Describe the properties of the Smith chart when used as admittance chart. In particular, discuss short and open circuit points, relation to the impedance chart, etc.
7. Define the conditions for matching on a transmission line.
8. What is a matching network? What purpose does it serve and how does it do so?
9. Is conjugate matching also possible on a transmission line? Explain.
10. Does matching on a line ensure that more power is transferred to the load than in the unmatched case? Explain.
11. How is stub matching accomplished? What is the basic principle involved?
12. Does stub matching guarantee:
  - (a) Maximum transfer of power to the load?
  - (b) More power transferred to the load than in the unmatched case? Explain.
13. Single stub matching is essentially a question of connecting the correct reactance on the line at the appropriate location. Can this be accomplished using capacitors or inductors instead of lines? Explain.
14. Can a single stub match all lines to any load? If not, what are the exceptions?
15. Why does it sometimes become necessary to use more than one stub for matching?
16. A stub may also be connected in series with the line. Discuss why this method is not used as often as parallel stubs.
17. In double stub matching, both lines are placed at fixed locations. Matching is achieved solely by changing the stubs lengths. *T/F*. Explain.
18. Double stub matching can match any line to any load. *T/F*. If not, what are the exceptions?
19. Single or double stub matching is frequency dependent. What happens if the frequency changes?
20. Can we use more than two stubs for matching? If yes, explain how this might work.
21. Describe the basics of quarter-wavelength transformer.

22. Does a quarter-wavelength transformer ensure maximum power transfer? Explain.
23. Cable TV companies allow a single connection per subscriber. How can they tell if the subscriber connects more than one TV set to the same line?