SP First Chapter 9 Questions

1. p 245 In a digital age why are continuous-time signals and systems still important?
2. p 246 Define the support of a signal.
3. What is the definition of a periodic c-t signal?
4. Must all infinite length c-t signals be periodic? If not, give an example.
5. p 247 What are one-sided and two-sided signals?
6. What is a right-sided signal?
7. What is the definition of the c-t unit step function?
8. p 248 How is the unit step signal used to make a finite length signal?
9. What are the two defining properties of the unit impulse function δ(t)?
10. p 251 What is the sampling property and its integral form (the sifting property) of δ(t)?
11. p 252-3 Write the equations from u(t) to δ(t) and from δ(t) to u(t).
12. p 254 For c-t systems give the equations for the ideal delay, differentiator, and integrator.
13. p 256 Note that the definitions for time invariance and linearity for c-t systems are essentially identical to those for d-t systems.
14. p 257 What is the convolution integral? Give both commutative forms.
15. p 259-260 Note the equivalence of properties of c-t and d-t convolution.
16. p 260 What is δ(t - t_1) * δ(t - t_2)?
17. p 264-5 Be able to carry out a simple convolution integral, and also for a discrete convolution sum.
18. p 274 What is the general (BIBO) stability definition?
19. p 274-5 Know the stability and causality criteria for LTI c-t systems.
20. What is a counterexample used for?