

Medical Equipment II - 2011

Exercise 3

1. What is the technology difference and advantages of AEDs over regular defibrillators? Where is their intended use environment?
2. What kinds of defibrillation waveforms are used with AEDs?
3. What kinds of artifacts are encountered with AEDs and how are they mitigated?
4. What are the mechanisms by which medical lasers work on tissues?
5. Explain the process of photodynamic therapy.
6. What are the main classes of medical lasers? Why is this classification important?
7. What are the components required for emission of light from a laser?
8. What are the possible serious risks encountered in the use of medical lasers?
9. What is ultrasound beamforming? What is the current technology in this area?
10. What is the typical number of elements in an ultrasound transducer? What is the range of frequencies used with such transducers?
11. What is the AIUM safety limit for ultrasound imaging powers?
12. What is the advantage of tissue harmonic imaging? What technology made this technique possible?
13. What is the principle of operation of electronic fetal monitors?
14. What are the use issues encountered with electronic fetal monitors?
15. Is electronic fetal monitoring considered as a tool for screening or diagnosis? Why?
16. In order to reconstruct an image with a resolution of 128×128 , we need ... independent equations at least.
17. Is ART considered as a method for solving matrix equations? Explain your answer.
18. Solve the following reconstruction from projections problem:

