

Lesson 9&10: Nuclear Chemistry II

text: 630-640

what to know:

- radiation in biology and medicine, §15-4
- nuclear binding energy, mass defect and nuclear binding energy per nucleon, §15-2
- nuclear fission processes and related terms, §15-5
- how various nuclear reactors work, §15-5
- hazards of "nuclear energy"
- concept of nuclear fusion and status of fusion reactors, §15-6
- radioimmunoassay, p-633
- how radiation affects life
- problems related with nuclear waste disposal, §15-5
- process of synthetic nuclear transmutation, §15-6

questions:

- 1.Explain why much heat is released during fission and fusion.
- 2.Describe the role of moderators and control rods in nuclear reactors.
- 3.What is meant by "chain reaction" and "critical mass"?
- 4.What is heavy water?
- 5.What are the hazards associated with nuclear reactor?
- 6.List at least 2 advantages a fusion process would have over a fission process for energy purposes.
- 7.If nuclear fusion occurs in the sun, what are the problems associated with using nuclear fusion
- 8.Which type of radiation from radioactive sources requires the most shielding, alpha, beta or gamma?
- 9.Why is Strontium-90 a particularly dangerous isotope for humans?
- 10.Radiation from radioactive sources is considered harmful to life. Exactly what does it do in a living
- 11.Describe the uses of radioactive isotopes in medicine, chemistry and commercial applications.