TEST #2 – section 1
Oct 28, 2015

1. Let's start this test by talking about Earth.
   a) How old is Earth, and what lines of evidence established it?
   b) What is the inner structure of Earth?
   c) How did we learn about the inner structure of Earth?
2. What are the alternative hypotheses to the formation of the Moon and what pieces of evidence render them unlikely?
3. Compare Lamarck's and Darwin's models for evolution. What is the one key difference, and what observations refuted the one model and confirmed the other?
4. Explain the basic building blocks of every living cell.
5. Radioactive iodine, ^{131}I, decays into ^{131}Xe. It is used predominantly in medicine, for treating thyroid cancer because of the thyroid's affinity to absorb it.
   a) Is this an α, β or γ process? Explain why by explaining *only* the chosen process.
   b) If 10% of ^{131}I decays in 1.219 days, what is the half-life of ^{131}I?
   c) After what time will there be 99% ^{131}Xe?
   d) Is ^{131}I decay practical for modern forensic analysis (i.e. examining teeth or hair of recently deceased victims)? Why?
6. Explain in detail how do we classify all living organisms; what initial attempts were made, why they failed, and why is the modern classification scheme considered robust.