Phys 202, Astronomy
Test 2 Study Guide

1. Know the currently accepted age of the solar system, and how long ago life first appeared on Earth
2. Know the following about Earth
    1. what causes plate tektonics?
    2. why is it hot inside?
    3. where did the Earth's early atmosphere go, and why is it like it is now?
    4. why are we safe from most harmful ultraviolet rays on the surface of Earth?
3. Know the early history of the planets, specifically
    1. where did the water of Earth's oceans come from
    2. why does Venus' atmosphere have a lot of CO_2 (carbon dioxide) but not Earth's -- where did it go?
    3. why does Earth's atmosphere have a lot of oxygen -- where did it come from?
4. Know what elements make up most of the Sun's (and the solar nebula's and the jovian planets') mass
5. Know the following about the terrestrial planets
    1. relative densities
    2. relative surface temperatures of the planets, why they have these temperatures, what they would be if they did not have atmospheres, and relative day/night extremes
    3. what the atmospheres are like (thick, thin, non-existent)
    4. relative magnetic field strength and what causes it
6. Know what the two main greenhouse gases are
7. Know the relative locations of
    1. the planets, especially Neptune and Pluto and the relationship of their orbits
    2. the asteroid belt
    3. the Kuiper belt
    4. the Oort cloud
8. Know the following about asteroids and comets
    1. how asteroids are different from comets (what they are made of)
    2. the two tails of comets, what they are made of, and what pushes them away from the Sun
    3. the origin of the asteroid belt, the Kuiper belt, and the Oort cloud
9. Understand how Pluto is different from the other planets, why it is now being questioned whether Pluto is a planet at all, and what kind of object it would be considered if it is not a planet
10. Be familiar with the following moons: Io, Titan, Europa
11. Know the following about planetary ring systems
    1. which planets have ring systems
    2. what causes Jupiter's rings
    3. what causes Saturn's rings and what is the Cassini Division
12. Know the definition of convection, its role in Plate Tectonics, and its role in the Sun
13. Know the relationships among the terms meteor, meteoroid, meteorite, and the popular names of shooting star or falling star
14. Be familiar with gravitational equilibrium, and what two forces are balanced in the Sun
15. Know the following about the Sun
    1. approximate temperature of the Sun's surface
    2. approximate temperature of the Sun's core
    3. the names (in order) of the layers of the Sun's interior, surface, and outer atmosphere
    4. the reason that sunspots appear dark
    5. how the Sun produces energy, and what products are created during fusion
    6. where in the Sun is energy produced
    7. how is energy transported in the radiative and convection zones
    8. what is the basic *composition* of the Sun (fraction of H, He, and metals)
16. Be familiar with what happens to the minor products (positrons and neutrinos) of nuclear fusion in the Sun.
17. Be familiar with the terms solar granulation, sunspot cycle, solar flares, coronal mass ejections