Geo 1327A 2013 final test - July 2, 2013 - 10.00-12.00

1. Make a timeline of the life of our Sun. Start with its birth all the way to its death. Name the different stages in its life and give approximate times. Which processes are playing a role at which state?

2. Give an overview of the different stages of the formation of our Solar System.

3. Draw a schematic of our Solar System with a realistic distribution of the different bodies. The schematic does not need to be in the correct scale, but the objects do need to be placed on their correct positions. Name the different categories to which they belong.

4. It is hypothesized that the terrestrial planets all started out with a similar atmosphere. Looking at the planets today there is quite a difference between these atmospheres.
What are the pressures and main components of the atmospheres of Venus, Earth, and Mars? List for each planet what processes drive or have driven the atmospheres on these planets.

5. The outer planets display different color features.
a) Especially very visible on Jupiter and Saturn are the lighter zones and darker belts. What are the differences between the two?
b) Why do Uranus and Neptune appear blue compared to jupiter and Saturn?

6. List at least two problems related to the current leading hypothesis on the formation of the Moon.

7. Meteorites are the only accessible pieces of extraterrestrial material on Earth, apart from the Apollo lunar samples. Name the three sub-categories of stony meteorites and explain what makes them so interesting

8. In the course seven prerequisites where mentioned that make a planet habitable. Name at least four, with an explanation why these are important.

9. Which technique is used to measure the compositions of minerals on other planets and how does this technique work? A drawing representing the acquired data may be useful to support your explanation.

10. How are surface ages of the terrestrial planets determined? Which samples serve as a calibration and reference for these ages? Which theory about the early Solar System was derived from these measurements?