

Quiz Chapter 4, Astro 162, Nov. 14, 2012

- 4-1. How many planets in the solar system are there?
a) 4
b) 8 X
c) 9
d) 13
- 4-2. How old is the Earth?
a) about 6000 years old
b) about 4.6 million years old
c) about 4.6 billion years old X
d) about 13.7 billion years old
- 4-3. What is the smallest planet?
a) Venus
b) Jupiter
c) Uranus
d) Mercury X
- 4-4. How are most planets orbiting other stars detected?
a) the planets are observed directly
b) by the alternating Doppler shifts of the stars X
c) by the change in color of the star as the planet passes in front of it
d) by the motions of moons around these planets
- 4-5. The planets that have been discovered outside the solar system are typically most similar in mass to which of the following?
a) the Sun
b) the Earth
c) Pluto
d) Jupiter X
- 4-6. Rock and metal debris smaller than asteroids is called:
a) planets
b) planetesimals
c) meteoroids X
d) comets
- 4-7. Planetesimals collide and stick together to form protoplanets because
a) of their mutually attractive gravitation. X
b) they are weakly charged and can attract each other.
c) chemical bonds hold them together if they happen to collide.
d) Both b and c

4-8. Which aspect of the early solar nebula controlled the early evolution and place of formation of the terrestrial and the Jovian planets?

- a) The rotation of the nebula
- b) Distribution of hydrogen in the nebula
- c) Distribution of silicates in the nebula
- d) Temperature distribution within the nebula X

4-9. If a moon of a planet shows very few craters we can immediately conclude that

- a) the moon is in the shadow of a very large planet.
- b) the moon has a very hard surface.
- c) the moon is geologically active. X
- d) the magnetic field of the moon shields it from meteors.

4-10. The magnetic field of a planet is produced by

- a) iron inside the planet, which mimics a bar magnet.
- b) the solar wind captured by the planet.
- c) electric currents in a solid region inside the planet.
- d) electric currents in a liquid-conducting region inside the planet. X

Chapter 4 Thought/Writing Questions

4-11. Why did the gas that formed the solar system have to be sufficiently cold for it to collapse to form the Sun, planets, and other objects here? **Gravity.**

4-12. Why is it so hard for us to see planets orbiting other stars? **Very small size, small amounts of radiation compared to their stars...**

Misconception-Based Questions

4-13. How many stars are there in the solar system?

- a) 1 X
- b) 2
- c) millions
- d) billions

4-14. Is the dwarf planet Pluto always farther from the Sun than the planet Neptune? Why or why not?

NO... it is in a highly elliptic around the sun and is sometimes within Neptune's orbit.