Home work - Ch. 8 - Jovian Planet Systems Student Name:

1. What is the structure of Jupiter like?
   a) Rocky core, thin atmosphere
   b) Rocky core, thick atmosphere
   c) Gaseous on the outside, then liquid hydrogen, more dense metallic hydrogen, rocky/icy/ metallic core
   d) Gaseous on the outside, then liquid hydrogen, then helium, then the other elements
2. Jupiter does not have a large metal core like Earth. How can it have a magnetic field?
   a) The magnetic field is left over from when Jupiter accreted
   b) Its magnetic field comes from the Sun
   c) It has metallic hydrogen inside, which circulates and makes a magnetic field
   d) That's why its magnetic field is weak
3. What is the most geologically active world we know of in the solar system?
   a) Earth–due to its earthquakes and volcanoes
   b) Mercury, the hottest planet
   c) Mars
   d) Jupiter
   e) Jupiter's moon Io
4. How does Io get heated by Jupiter?
   a) Light from the Sun
   b) Infrared radiation
   c) Jupiter causes tidal heating by pulling harder on one side than the other
   d) Volcanoes
5. Why do Jupiter, Saturn, Uranus, and Neptune all have rings?
   a) Rings were left over from solar system formation
   b) They all captured particles
   c) All four planets had a large moon that disintegrated
   d) All have small moons and small orbiting particles that constantly collide and make rings
6. Surprising discovery?: A new moon is found orbiting Neptune in its equatorial plane and in the same direction as Neptune rotates, but its made almost entirely of metals such as iron and nickel.
   a) Plausible. At these large distances from the Sun, the moon could have a high metal content.
   b) Plausible. The moon could be a captured asteroid.
   c) Plausible. The moon could be a captured Oort cloud object.
   d) Implausible. Solid objects at those distances are largely icy and rocky.
   e) Implausible. Such a dense object would not last long before falling into Neptune.
7. Surprising discovery?: A jovian planet in another star system is found to have a moon as big as Mars.
   a) Plausible. There is no reason why jovian planets cannot have such large moons.
   b) Plausible. Jupiter itself has several moons as large as Mars.
   c) Plausible. Astronomers have already found large planets and moons around other star systems.
   d) Implausible. Any moon that was as large as Mars would be torn apart by tidal forces.
   e) Implausible. Any moon that was as large as Mars would be called a planet it its own right.
8. About how long does it take a spacecraft to go from Earth to Jupiter?
   a) A week
   b) A month
   c) A year
   d) Several years
   e) Several decades
9. What is the weather usually like on Jupiter?
   a) High speed, low density clouds
   b) Low speed, high density clouds
   c) Winds of hundreds of miles per hour, thick clouds
   d) Clear and very cold
   e) Many bright stars at night, since Jupiter is closer to the stars than Earth
10. Looking at a Jovian planet in different wavelengths of light allows us to:
   a) See different kinds of clouds
   b) See to different depths or levels in the atmosphere
   c) See layers of different temperatures
   d) All of the above
   e) A and B