

NAME: _____

DATE: _____

PHYS 1040 Homework #4

1. What properties apart from position distinguish the Terrestrial (inner) and Jovian (outer) planets?
2. What is an interstellar cloud? What does it have to do with the Solar System?
3. Why are there two main types of planets in our Solar System?
4. Describe a theory of how planets may have formed their atmospheres.
5. What is the dominant gas in Venus' atmosphere, and how do we know this?
6. What are the Martian polar caps made of?
7. What is the evidence that Mars once had running water on its surface?

8. What is the Great Red Spot? Describe some of its features.
9. What is so unusual about Uranus? What might explain this peculiarity?
10. Mercury's average density is about 1.5 times greater than the Moon's, even though the two bodies have similar sizes. What does this suggest about Mercury's composition?
- (a) Mercury contains proportionately far more rock than the Moon.
 - (b) Mercury's mass has prevented its gravitational attraction from compressing it as much as the Moon is compressed.
 - (c) Mercury's interior is much richer in Iron than the Moon's.
 - (d) Mercury must have a Uranium core.
 - (e) Mercury must have a liquid water core.
11. Which body in the Solar System has the densest atmosphere?
- (a) Mercury
 - (b) Venus
 - (c) Earth
 - (d) Mars
 - (e) the Moon
12. Meteor showers like the Perseids in August are caused by:
- (a) the breakup of asteroids that hit our atmosphere at predictable times
 - (b) passing asteroids triggering auroral displays
 - (c) nuclear reactions in the upper atmosphere triggered by an abnormally-large object entering the upper atmosphere.
 - (d) the Earth passing through the debris left behind by a comet as it moves through the inner Solar System
 - (e) none of the above
13. The bright streak of light we see as a meteoroid enters our atmosphere is caused by:
- (a) sunlight reflecting from the solid body of the meteoroid
 - (b) radioactive decay of the material in the meteoroid
 - (c) a process similar to the aurora that is triggered by the meteoroid disturbing the Earth's magnetic field
 - (d) frictional heating as the meteoroid speeds through the gases in our atmosphere
 - (e) the meteoroid disturbing the atmosphere so that sunlight is refracted in unusual directions
14. How long does it take for sunlight to reach Pluto (on average)?