## Astro 1051. Planetary Astronomy.

## Review questions for Quiz 4. (Mostly Ch. 6, some Ch. 16, and some Ch. 7).

1. T or F. The total mass of all the planets is about half the mass of the Sun.
2. T or F. Some terrestrial planets have no Moons.
3. T or F. Curiosity is a rover that recently landed on Venus.
4. T or F. A planet with a density of $5000 \text{ kg/m}^3$ most likely has a gaseous composition.
5. (2pts) Name 4 things in our solar system, excluding the planets (and things on the planets)
6. All of the following are properties of terrestrial planets except
(a) high density (b) possessing many moons (c) close to the Sun (d) lacking rin systems (e) Earth-like composition
7. On which of the terrestrial planets are surface features most easily seen from an Earth-base telescope?
(a) Mercury (b) Venus (c) Mars (d) Jupiter (e) Saturn
8. When we divide a planet's mass by its volume, we get
<ul> <li>(a) the planet's average density</li> <li>(b) the planet's central density</li> <li>(c) the planet's uncompressed density</li> <li>(d) 1100 kg/m³ for all terrestrials</li> <li>(e) its average pressure</li> </ul>
9. Which type of planet, Jovian or Terrestrial, has the higher (1 pt each)
<ul> <li>(a) spin rate? (J or T)?</li> <li>(b) mass? (J or T)?</li> <li>(c) radius? (J or T)?</li> <li>(d) distance from the Sun? (J or T)?</li> <li>(e) density? (J or T)?</li> </ul>
10. (1 pt) The spacecraft that was sent to <i>primarily</i> observe Jupiter was
(a) Cassini (b) Venera (c) Magellan (d) Messenger (e) Galileo
11. (1 pt) A spacecraft that was sent to observe Venus was
(a) Cassini (b) Venera (c) Magellan (d) Messenger (e) Galileo

12.	(1pt) Without dust, the nebular theory for the solar system had trouble explaining
	(a) CCW orbits of planets (b) coplanar orbits of planets (c) a star at the center (d) how the gas could begin clumping together (e) the rotation of the Sun
13.	(1pt) The flattening of the solar nebula and its increase in spin during collapse are related to the conservation of
	(a) energy (b) momentum (c) angular momentum (d) mass (e) spin
14.	(1pt) The terrestrial planets tend to be made out of high-melting point materials, while the Jovian planets contain mostly gases and low-melting point materials. This is a prediction of
	<ul> <li>(a) special relativity</li> <li>(b) Rene Descartes</li> <li>(c) the condensation sequence</li> <li>(d) the nebular hypothesis</li> <li>(e) Laplace</li> </ul>
15.	The age of the solar system, as measured by radioactive dating of the oldest meteorites, is years.
	(a) 4.6 billion (b) 12 billion (c) 4.5 million (d) 12 thousand (e) 46 billion
	Questions on Ch. 7, Planet Earth
16.	Questions on Ch. 7, Planet Earth  Which layer of the Earth's atmosphere contains most of its mass?
16.	
	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere
	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere
17.	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  Which layer of the Earth's atmosphere contains most of the clouds and weather?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere
17.	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  Which layer of the Earth's atmosphere contains most of the clouds and weather?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere
17. 18.	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  Which layer of the Earth's atmosphere contains most of the clouds and weather?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  The fraction of the Earth's atmosphere that is made up of CO <sub>2</sub> is  (a) in-between that on Venus and Mars (b) lower than that on Venus and Mars (c)
17. 18.	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  Which layer of the Earth's atmosphere contains most of the clouds and weather?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  The fraction of the Earth's atmosphere that is made up of CO <sub>2</sub> is  (a) in-between that on Venus and Mars (b) lower than that on Venus and Mars (c) higher than on Venus and Mars (d) steadily decreasing (e) over 99%  The, which extends far above the ionosphere, helps protect us from ener-
17. 18.	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  Which layer of the Earth's atmosphere contains most of the clouds and weather?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  The fraction of the Earth's atmosphere that is made up of CO <sub>2</sub> is  (a) in-between that on Venus and Mars (b) lower than that on Venus and Mars (c) higher than on Venus and Mars (d) steadily decreasing (e) over 99%  The, which extends far above the ionosphere, helps protect us from energetic charged particles from space (cosmic rays).
17. 18. 19.	Which layer of the Earth's atmosphere contains most of its mass?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  Which layer of the Earth's atmosphere contains most of the clouds and weather?  (a) troposphere (b) lithosphere (c) mesosphere (d) stratosphere (e) ionosphere  The fraction of the Earth's atmosphere that is made up of CO <sub>2</sub> is  (a) in-between that on Venus and Mars (b) lower than that on Venus and Mars (c) higher than on Venus and Mars (d) steadily decreasing (e) over 99%  The, which extends far above the ionosphere, helps protect us from energetic charged particles from space (cosmic rays).  (1pt) The Earth's core is subdivided into parts. (Note: "core" not "interior".)

22.	The best way to reveal the outlines of crustal plates on the Earth is a map of
	(a) the continents (b) earthquake epicenters (c) islands (d) the oceans (e) lines of latitude
23.	Which property is unique to the Earth among the terrestrial planets.
	(a) clouds (b) the greenhouse effect (c) a dense core (d) plate tectonics (e) volcanos
24.	The type of seismic wave which can propagate through the Earth's mantle but NOT through the liquid core is the $\_\_$
	(a) P wave (b) S wave (c) L wave (d) sine wave (e) N wave
25.	Which type of seismic wave can not penetrate through the outer core?
26.	The analysis of seismic waves has shown us that the Earth
	<ul> <li>(a) is rotating</li> <li>(b) has a creamy, caramel center</li> <li>(c) has a liquid inner core</li> <li>(d) has a liquid outer core</li> <li>(e) has a magnetic inner core</li> </ul>
27.	The driving force behind plate techtonics is thought to be in the Earth's mantle.  (a) radioactivity (b) rotation (c) convection (d) differentiation (e) flooding
28.	If we trace the Earth's continental drift backward in time for 200 million years, we find
	(a) no change from today (b) one large continent, dubbed Pangaea (c) no mountain chains (d) the oceans are much smaller (e) a time when the crust was molten
29.	The stage of planetary development which involves the sinking of dense material to the core is called $\underline{\hspace{1cm}}$
	(a) differentiation (b) cratering (c) flooding (d) slow surface erosion (e) weathering
$\mathbf{F}$	rom Ch.16 (The Sun): See the previous review questions for questions on The

Sun.