

SAMPLE TEST 3 QUESTIONS
Physics 2021 – Fall 2009

1. A special type of sedimentary rock can be produced on the Moon. The force of large impacts fuses some loose rocks together to form re-cemented rocks called
 - a. breccia
 - b. conglomerate
 - c. basalt
 - d. anorthosite
 - e. regolith

2. Which of the following is a valid criticism of the fission theory of the origin of the Moon?
 - a. the Earth and Moon have identical composition
 - b. the Moon lacks an iron core
 - c. the scar from the fission should remain on the Earth's surface
 - d. multiple moons should have been created
 - e. the Earth and Moon did not have enough angular momentum for fission

3. Mercury's magnetic field, compared with that of the Earth, is
 - a. varies by almost a factor of 2 during its eccentric orbit
 - b. weak, but strong enough to deflect the solar wind
 - c. much more powerful
 - d. extremely weak, so that it cannot prevent the solar wind from hitting its surface
 - e. of equivalent strength

4. Which of these features is attributed to the shrinking of Mercury's core upon cooling?
 - a. Mare
 - b. Scarps
 - c. Weird terrain
 - d. Inter crater plains
 - e. Graben

5. Tectonic activity on Venus differs from that on Earth in that
 - a. the lithosphere appears to be cooler and thicker, and is therefore too rigid to break up into moving plates
 - b. mantle convection appears to be more vigorous and has broken the lithosphere into a multitude of small plates instead of a few large ones
 - c. tectonic activity appears to be completely absent
 - d. the heavier atmosphere prevents plates and mountains from rising as high
 - e. the lithosphere appears to be thinner and weaker and cannot support the creation and motion of solid plates

6. The surface pressure of the atmosphere of Venus compared to that of Earth is
 - a. about 1/100 atmosphere
 - b. about 1/10 atmosphere
 - c. about the same as Earth
 - d. about 90 atmospheres
 - e. extremely small

7. What significant evidence exists for the idea that large quantities of water once flowed on the planet Mars?
 - a. a network of relatively straight canals linking polar and equatorial regions
 - b. deep, winding canyons and flood plains
 - c. frozen but dust-covered lakes inside ancient craters
 - d. clouds and frost forming above and around the Viking spacecraft
 - e. polar ice caps in both hemispheres

8. The dominant composition of the regolith on Mars is probably
 - a. iron-rich clay
 - b. volcanic ash from geologically-recent eruptions
 - c. concrete from ancient canals, pulverized by meteoritic bombardment
 - d. anorthosites pulverized by meteoritic bombardment
 - e. basaltic lava pulverized by meteoritic bombardment

9. Some of the Martian outflow channels originate in chaotic terrain. How were the chaotic terrain and the outflow channels emerging from them probably produced?
 - a. small volcanic outbursts followed by the flow of lava
 - b. grazing impacts by interplanetary debris
 - c. Mars-quakes followed by landslides
 - d. they were produced by plate tectonic activity
 - e. melting of underground ice followed by the flow of water

10. Compare and contrast the interiors of the Earth and Moon.

ANSWERS

1. a. breccia
2. e. not enough angular momentum
3. b. weak but can deflect the solar wind
4. b. scarps
5. e. thinner and weaker so no plates formed
6. d. 90 times
7. b. deep, winding canyons and flood plains
8. a. iron-rich clay
9. e. melting of permafrost
10. Earth has a thin crust, a plastic-like mantle, a liquid outer core, and a solid inner core. The Moon has a very thick crust, a brittle mantle, and a small solid core.