

ASTR 1504/1514: Astronomy: Exploring the Universe Midterm Exam 2

1. Which of the following contributes most to the large difference in the average daytime and nighttime temperatures on the Moon?
 - A: The lack of a hydrosphere
 - B: The lack of a magnetosphere
 - C: The lack of an atmosphere
 - D: The lack of geologic activity
2. Why did the terrestrial planets lose their primary atmospheres?
 - A: Their low gravities couldn't hold them.
 - B: The solar wind blew them away.
 - C: Their high surface temperatures made them chemically react with rock.
 - D: The centrifugal force from their fast rotation rates made them fly off.
3. Venus's surface temperature is fairly uniform from the equator to the poles because:
 - A: Venus rotates very rapidly, which causes strong zonal winds
 - B: Venus is covered by a thick cloud layer that absorbs most of the sunlight that falls on it
 - C: the carbon dioxide in Venus's atmosphere efficiently emits infrared radiation
 - D: Venus rotates slowly so Coriolis forces do not disrupt Hadley circulation
4. Which component in our atmosphere is a direct consequence of the emergence of life.
 - A: Carbon dioxide
 - B: Water vapor
 - C: Nitrogen
 - D: Oxygen
5. The gas giants are composed primarily of:
 - A: hydrogen
 - B: helium
 - C: water
 - D: ammonia

6. The compositions of Uranus and Neptune differ primarily from that of Jupiter and Saturn in that the outer two planets contain more:
- A: hydrogen
 - B: helium
 - C: water ice
 - D: carbon dioxide
7. Why are Jupiter and Saturn not perfectly spherical?
- A: They formed from the collision of two large planetesimals.
 - B: They rotate rapidly.
 - C: They have storms that develop preferentially along their equators.
 - D: They have very active aurorae that heat the atmospheres along the poles.
8. As a group, which is the following describes the rotation of giant planets compared to terrestrial planets.
- A: faster than
 - B: slower than
 - C: the same as
 - D: retrograde compared to
9. What is the most common geologic feature seen on moons?
- A: Craters
 - B: Volcanoes
 - C: Palimpsests
 - D: Geysers
10. Which property of a moon might lead you to believe it was a captured asteroid?
- A: It is tidally locked.
 - B: Its orbital axis is tilted by 10 degrees compared to the planets rotational axis.
 - C: It rotates clockwise around the planet when viewed from the planets north pole.
 - D: Its surface is very smooth and lacks craters.
11. Meteorites are more likely to come from asteroids than comets.
- A: True
 - B: False

12. All meteorites are remnants of planetesimals that never coalesced to form a planet.
- A: True
 - B: False
13. A parsec is a unit of time.
- A: True
 - B: False
14. The absolute magnitude of a star is a measure of its luminosity.
- A: True
 - B: False
15. Stars with a higher apparent brightness are necessarily closer to us than fainter stars.
- A: True
 - B: False
16. How many arcseconds are there in a degree?
- A: 60
 - B: 360
 - C: 3,600
 - D: 6,000
17. When an electron moves from a higher energy level in an atom to a lower energy level:
- A: the atom is ionized
 - B: a continuous spectrum is emitted
 - C: a photon is emitted
 - D: a photon is absorbed
18. Star A is a red star. Star B is a blue star. Which is hotter?
- A: Star A
 - B: Star B
 - C: We also need to know the luminosities of the stars to determine their temperatures.
 - D: Color is not related to temperature at all.