

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Which of the following has your "cosmic address" in the correct order? 1) _____
A) You, Earth, solar system, Milky Way Galaxy, Local Group, Local Supercluster, universe
B) You, Earth, solar system, Local Group, Local Supercluster, Milky Way Galaxy, universe
C) You, Earth, Local Group, Local Supercluster, solar system, Milky Way Galaxy, universe
D) You, Earth, Milky Way Galaxy, solar system, Local Group, Local Supercluster, universe
E) You, Earth, solar system, Local Group, Milky Way Galaxy, Local Supercluster, universe
- 2) When we look at an object that is 1,000 light-years away we see it 2) _____
A) as it is right now, but it appears 1,000 times dimmer.
B) as it was 1,000 years ago.
C) as it was 1,000 light-years ago.
D) looking just the same as our ancestors would have seen it 1,000 years ago.
- 3) A television advertisement claiming that a product is light-years ahead of its time does not make sense because 3) _____
A) it uses "light-years" to talk about time, but a light-year is a unit of distance.
B) a light-year is an astronomically large unit, so a product could not possibly be so advanced.
C) light-years can only be used to talk about light.
D) it doesn't specify the number of light-years.
- 4) Suppose we look at two distant galaxies: Galaxy 1 is twice as far away as Galaxy 2. In this case, 4) _____
A) Galaxy 2 must be twice as old as Galaxy 1.
B) we are seeing Galaxy 1 as it looked at a *later* time in the history of the universe than Galaxy 2.
C) we are seeing Galaxy 1 as it looked at an *earlier* time in the history of the universe than Galaxy 2.
D) Galaxy 1 must be twice as big as Galaxy 2.
- 5) The term *observable universe* refers to 5) _____
A) that portion of the universe that we can see *in principle*, given the current age of the universe.
B) that portion of the universe that we have so far photographed through telescopes.
C) the portion of the universe that is not hidden from view by, for example, being below the horizon.
D) the portion of the universe that can be seen by the naked eye.
- 6) What is the *celestial sphere*? 6) _____
A) The celestial sphere is a representation of how the entire sky looks as seen from Earth.
B) It represents a belief in an Earth-centered universe, and hence is no longer considered to have any use.
C) The celestial sphere is a model that shows the true locations in space of the Sun and a few thousand of the nearest stars.
D) The celestial sphere is a model of how the stars are arranged in the sky relative to our Sun, which is in the middle of the sphere.

- 7) Which of the following statements about the celestial sphere is *not* true? 7) _____
- A) When we look in the sky, the stars all appear to be located on the celestial sphere.
 - B) The Earth is placed at the center of the celestial sphere.
 - C) The celestial sphere does not exist physically.
 - D) The "celestial sphere" is another name for our universe.
- 8) Suppose Earth's axis tilt was significantly greater than its current 23.5 degrees, but Earth's rotation period and orbital period were unchanged. Which statement below would *not* be true? 8) _____
- A) The length of each season (for example, the number of days from the summer solstice to the fall equinox) would be significantly longer than it is now.
 - B) Polaris would not be our North star.
 - C) The region of Earth where the Sun does not rise on the winter solstice would be larger (extending farther south) than it is now.
 - D) Summers and winters would be more severe (for example, hotter and colder, respectively) than they are now.
- 9) The fact that the Earth has moved along its orbit in the time it took to rotate once is the reason for 9) _____
- A) the difference between solar and sidereal time.
 - B) precession.
 - C) Earth's 23.5-degree tilt.
 - D) seasons.
 - E) the position of the Celestial Equator.
- 10) You note that a particular star is directly overhead. It will be directly overhead again in 10) _____
- A) 1 hour.
 - B) 12 hours.
 - C) 23 hours 56 minutes.
 - D) 24 hours.
 - E) 24 hours 4 minutes.
- 11) What are constellations? 11) _____
- A) groups of stars making an apparent pattern in the celestial sphere
 - B) groups of stars gravitationally bound and appearing close together in the sky
 - C) ancient story boards, useless to modern astronomers
 - D) groups of galaxies gravitationally bound and close together in the sky
 - E) apparent groupings of stars and planets visible on a given evening
- 12) The mean distance between the Earth and Sun is called 12) _____
- A) the light-year.
 - B) the Kepler.
 - C) the megameter.
 - D) the astronomical unit.
 - E) the parsec.

13) During the period each year when we see Mars undergoing apparent retrograde motion in our sky, what is really going on in space?

13) _____

- A) Earth and Mars are getting closer together.
- B) Earth is catching up with and passing by Mars in their respective orbits.
- C) Earth and Mars are on opposite sides of the Sun.
- D) Mars is moving around the Sun in the opposite direction from which Earth is moving around the Sun.