

Astronomy 4 - Introduction to Astronomy
Module 8 Quiz

1. If you take a spectrum of a galaxy, what type of spectrum will you observe?
 - a. A continuous spectrum
 - b. An emission line spectrum
 - c. An absorption spectrum
 - d. None of the above
2. How can you tell if a galaxy is moving toward us, or away from us?
 - a. As you watch it over the course of a year, an approaching galaxy will appear to grow larger in angular size on the sky
 - b. Spectral lines of elements will be observed in the galaxy's spectrum at greater wavelengths than those for the same elements in the lab if a galaxy is receding from us
 - c. Spectral lines of elements will be observed in the galaxy's spectrum at shorter wavelengths than those for the same elements in the lab if a galaxy is receding from us
 - d. Doppler measurements from radar bouncing off of stars can be used to measure the velocity and direction of motion since galaxies are close to us
 - e. By measuring the angular motion of galaxies across the sky in one year we can readily determine a galaxy's velocity
3. Are most galaxies moving toward us, or moving away from us?
 - a. With the exception of only a few of the most nearby galaxies, all galaxies are moving away from us
 - b. With the exception of only a few of the most nearby galaxies, all galaxies are moving towards from us
4. Are more distant galaxies moving faster or more slowly than nearby ones?
 - a. The farther away a galaxy is from us, the faster it is moving
 - b. The closer a galaxy is to us, the faster it is moving
5. Is the Milky Way at the center of the Universe?
 - a. Since essentially all galaxies are moving toward the Milky Way, our Galaxy is the center of the Universe
 - b. Since essentially all galaxies are moving away from the Milky Way, our Galaxy is the center of the Universe
 - c. Even though essentially all galaxies are moving toward the Milky Way, our Galaxy is not the center of the Universe because we too are moving in a direction that defines the center of the Universe
 - d. Even though essentially all galaxies are moving away from the Milky Way, our Galaxy is not the center of the Universe because every galaxy sees every other galaxy the same way as a result of the expansion of the Universe itself
 - e. None of the above

6. What is the Hubble constant?
 - a. The Hubble constant tells us what the relation is between a galaxy's velocity and its distance
 - b. The Hubble constant is the number that tells us the rate at which the Universe is expanding
 - c. The Hubble constant tells us what the age of the Universe based on our understanding of the Big Bang
 - d. All of the above
 - e. None of the above
7. What is the approximate age of the Universe according to our understanding of the Big Bang?
 - a. 3,000 years
 - b. 1,000,000 years
 - c. 4,600,000,000 years
 - d. 13,700,000,000 years
 - e. Infinite
8. What is the 3 degree microwave background radiation?
 - a. The temperature of the remnant radiation left after the Big Bang
 - b. The temperature of a neutron star, which is why they are detected with microwave telescopes
 - c. The uncertainty in the temperature we measure for the Sun
 - d. The temperature of the energy radiated by the Earth back into space
 - e. The temperature left in a microwave oven after Orville Redenbacher popcorn ceases to pop
9. How well does the observed background radiation agree with theoretical predictions?
 - a. The observed background radiation temperature agrees with that predicted to high precision, lending substantial weight to our scientific understanding that the Big Bang did in fact occur
 - b. The observed background radiation temperature agrees with that predicted to high precision, although numerous other scientific theories and/or religious/philosophical make the same prediction. Hence the Big Bang is just another theory
10. How should gravity affect the expansion rate of the Universe?
 - a. The presence of matter should result in gravity slowing down the expansion rate of the Universe
 - b. The presence of matter should result in gravity accelerating the expansion rate of the Universe
 - c. Gravity should have no effect on the expansion rate of the Universe