Astronomy 2B03 **SAMPLE MIDTERM QUESTIONS**

REMEMBER TO BRING A PENCIL and ID TO THE MIDTERM!!!

TEST: Thursday, October 18th, 2018 in class
Thursday, October 24th 2019 in class

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1. Evidence of the expansion of the universe is shown by
   a) The Einstein Cross
   b) The 4.5 billion year age of the Earth
   c) The abundances of the elements in stars
   d) The redshifts of distant galaxies

2. Hubble's Law says that
   a) The universe is primarily composed of dark energy
   b) The galaxies were once much closer together
   c) The universe is mostly dark
   d) The Earth and Sun are getting gradually farther apart

3. What can you calculate by taking the inverse of the Hubble constant?
   a) the age of the Solar System
   b) the recession velocity of the Universe
   c) the age of the Universe
   d) the Doppler Shift
   e) the distance to the centre of the Universe

4. Galaxies
   a) all have a spiral-like structure
   b) are gradually shrinking under their own gravity
   c) are gradually expanding by the action of Hubble's Law
   d) can be bigger than the Milky Way is

5. Lookback time
   a) is a consequence of the finite speed of light
   b) shows us what the Earth looked like when it formed
   c) allows astronomers in the Andromeda galaxy to see the Milky Way as it is in the future
   d) all of the above

6.Radio waves travel through space at what speed?
   a) much faster than the speed of light
   b) faster than the speed of light, since their wavelength is longer
   c) at the speed of sound
   d) at the speed of light, 3×10^8 m/s

7. The observational fact about a Cepheid variable star that leads to a measurement of its distance from the Earth is that its period of variation is directly related to its

a) absolute magnitude or luminosity.
b) apparent magnitude.
c) speed away from us, using the relativistic effect upon pulsation period
d) surface temperature.

8. What is the basic difference between ultraviolet, visible, and infrared radiation?

a) half-life
b) age
c) wavelength
d) velocity

9. Which of the following characteristics does **NOT** apply to giant elliptical galaxies?

a) rapidly rotating
b) not forming many stars
c) lacking spiral arms
d) found in the centres of galaxy clusters
e) all of the above

10. Ann sees Bob travel by her in a very fast spaceship

a) Ann observes Bob's clock to be running slowly and Bob observes Ann's clock to be running slowly
b) Ann observes Bob's clock to be running slowly and Bob observes Ann's clock to be running fast
c) Ann observes Bob's clock to be running fast and Bob observes Ann's clock to be running slowly
d) Ann observes Bob's clock to be running fast and Bob observes Ann's clock to be running fast
e) something else

11. Parallax is

a) the circular or elliptical motion of a star in a binary system, as the two stars orbit around each other.
b) the apparent shift that we see in the position of a nearly star as we orbit the Sun.
c) the difference between the apparent brightness and the intrinsic
d) the apparent change in the distance to a star if its light is dimmed by dust

12. About where is our solar system located within the Milky Way Galaxy?

a) at the center of the galaxy
b) about two-thirds of the way from the center of the galaxy to the outskirts of the galactic disk
c) about 10 percent of the way from the center of the galaxy to the outskirts of the galactic disk
d) in the halo of the galaxy above the galactic disk
e) none of the above