

ASTR 130 LECTURES 5-7: SAMPLE AND REVIEW QUESTIONS

These questions are intended to help you review the material for the midterm exam. They are a little harder than typical of the midterm itself (and there is also more emphasis on “brief answer” types than in the midterm). The best approach is first to study the material, then attempt this “quiz” without referring to the manual or your notes, then review the areas where you had trouble. You can use your skywheel while taking the quiz, since that will be allowed during the exams.

This review covers only Lectures 5-7; another review sheet is available for Lectures 1-4.

(T/F) The pinkish glow associated with some nebulae is produced by hot hydrogen gas.

(T/F) Most stars have absolute magnitudes which are brighter than their apparent magnitudes. (This question is equivalent to asking whether most stars are more distant than 10 parsecs from us.)

(T/F) Star formation was confined to only the earliest eras of the universe and is not continuing today.

(T/F) "Globular star clusters" were used historically as a key tracer of the structure of our Galaxy.

(T/F) A more massive star on the main sequence is brighter than a less massive star.

(T/F) The "Summer Triangle" is not visible during other seasons of the year.

If our Galaxy were strictly spherical and transparent, how would the appearance of the night sky differ from the way it looks now?

How many times less flux does a 13th mag star produce than a 3rd magnitude star? A) 10 times less; B) 13 times less; C) 100 times less; D) 10,000 times less.

(T/F) Temperatures of stars cannot be determined without obtaining an actual physical sample of their constituents.

What is the difference between M13 and M31? (Hint: review Lab 2.)

The Sun is a A) white dwarf; B) main sequence star; C) red giant star; D) supergiant.

In what ways is the absence of the Earth's atmosphere an important advantage in making observations from satellite observatories?

Why is the “winter” Milky Way less conspicuous than the “summer” Milky Way? A) weather worse; B) looking toward center of galaxy; C) looking toward outskirts of galaxy; D) stars are colder then and less bright.

Rank stars with the following colors in order from hottest to coolest: yellow, blue, red.

Where did most of the important elements in biological compounds (like carbon and oxygen) originate?

In which direction do you expect to see the most stars? A) toward the Galactic Pole; B) in the plane of the Galaxy.

In which direction do you expect to see the most external galaxies? A) toward the Galactic Pole; B) in the plane of the Galaxy.

What is interstellar “dust”? Where can you see it most conspicuously? How did it affect (historically) our understanding of the structure of our Galaxy?

(T/F) The most important role played by “dust” in the formation of new stars is that it acts as a refrigerant for interstellar gas.

Cite two reasons for the much higher cost of space telescopes than of ground-based telescopes of the same size.

What is a “planetary” nebula? Are such objects part of our Solar System?

What was the main difference (other than size) between the Yerkes 40-in telescope and the Mt. Wilson 100-in telescope?

Who was George Ellery Hale?

Modern major observatories have been constructed using funds from A) the federal government; B) universities; C) private donors; D) all of these.

What is a "red giant" star? How is a red giant related to a "main sequence" star? How does its temperature and radius compare to the Sun's? Give an example.

(T/F) The largest individual telescopes now available have apertures of 8-10 meters.

What fundamental property of a star is most important in governing the rate at which it evolves?

(T/F) The most useful catalog of diffuse objects related to star formation (e.g. clusters and nebulae) was compiled by comet hunter Charles Messier.

(T/F) The peak wavelength of the electromagnetic spectrum of a star is related to its temperature.

What are the Pleiades and the Hyades? Why are they, and objects like them, important to deciphering the evolution of stars?

Why would you expect that the difference between the apparent and absolute magnitudes of the Sun is larger than for any other visible star?

Which kind of telescope mount is cheaper to manufacture? A) Equatorial mount; B) Alt-Azimuth mount.

Is the Sun near the center of our Galaxy? How do we know?

How do “variable” stars help astronomers determine the structure of the universe?

What is the Milky Way?

What is a Hertzsprung-Russell diagram and why is it important?