Review Test Submission: 13 CHAPTER QUIZ

User	Wenyin San
Course	1501_Stars Galaxies and the Universe [1501_ASTR_1960_00]
Test	13 CHAPTER QUIZ
Started	2/17/15 12:10 PM
Submitted	2/17/15 12:15 PM
Due Date	2/20/15 10:00 AM
Status	Completed
Attempt Score	25 out of 25 points
Time Elapsed	5 minutes.
Instructions	

Question 1

1 out of 1 points

Stereoscopic vision requires:

Selected Answer: b. two different perspectives.

Correct Answer: b. two different perspectives.

Response Feedback: FEEDBACK: Stereoscopic vision is achieved by having two “eyes” separated by a distance. Each “eye” or detector perceives an object in a slightly different location, which allows us to judge distance (page 396).

Question 2

1 out of 1 points

Parallax is a measure of an angle to gauge:

Selected Answer: c. distance.

Correct Answer: d. distance.

Response Feedback: FEEDBACK: The more distant a star is, the smaller the angle that measures the two extreme positions of the star’s shift in position is (page 401).

Question 3

1 out of 1 points

A parsec is a measure of:

Selected Answer: b. distance.

Correct Answer: b. distance.

Response Feedback: FEEDBACK: A parsec is the distance at which the parallax angle is 1 arcsecond. This distance is 3.26 light-years (page 398).

Question 4

1 out of 1 points

You would not be able to use parallax to measure the distance to a star if the star were too:

Selected Answer: b. far away.

Correct Answer: b. far away.

Response Feedback: FEEDBACK: If a star is farther than 160 light-years away, you will not be able to measure its distance to better than 10 percent accuracy, because the parallax angle will be too small to be accurately determined (page 399).

Question 5

1 out of 1 points

An average distance between stars in the vicinity of the Sun is about:

Selected Answer: b. 5 light-years.

Correct Answer: d. 5 light-years.

Response Feedback: FEEDBACK: In the neighborhood of the Sun, each star has an average volume of space with a radius of about 4.4 light-years (page 399).

Question 6

1 out of 1 points

A star that appears brighter than another as we view it from Earth must also be:

Selected Answer: c. There is no general statement that can be made.

Correct Answer: c. There is no general statement that can be made.

Response Feedback: FEEDBACK: Unless we know the distance of a star from us, we cannot know its intrinsic luminosity. If one star appears brighter than another, it may be because that star is closer than the second star (page 400).

Question 7

1 out of 1 points

Most stars are:

Selected Answer: b. less luminous than our Sun.

Correct Answer: c. less luminous than our Sun.

Response Feedback: FEEDBACK: There are relatively few high luminosity stars. Most stars are less luminous than our Sun (page 400).

Question 8

1 out of 1 points

The higher a star's temperature is, the:

Selected Answer: b. shorter its peak wavelength must be.

Correct Answer: d. shorter its peak wavelength must be.

Response Feedback: FEEDBACK: Shorter wavelength photons are more energetic, so hotter stars have more short- wavelength, high-energy emission (page 402). See also, Stellar Spectrum.

Question 9

1 out of 1 points

Higher-temperature stars produce:

Selected Answer: c. more light per unit of surface area.

Correct Answer: c. more light per unit of surface area.

Response Feedback: FEEDBACK: According to the Stefan-Boltzmann law, the amount of energy radiated per second for each square meter of the surface of a star is directly proportional to the fourth power of the surface temperature of the star (page 403). See also, Stellar Spectrum.

Question 10

1 out of 1 points

The largest diameter stars that we see are known as:

Selected Answer: d. red supergiants.

Correct Answer: b. red supergiants.

Response Feedback: FEEDBACK: Red supergiants are more than 1,000 times the radius of the Sun, and they are the largest stars observed (page 403). See also, Stellar Spectrum.

Question 11

1 out of 1 points

Annie Jump Cannon is known for:

Selected Answer: c. categorizing stars according to spectral type.

Correct Answer: b. categorizing stars according to spectral type.

Response Feedback: FEEDBACK: Annie Jump Cannon systematically classified hundreds of thousands of stars according to spectral types designated by letters of the alphabet (page 403).

Question 12

1 out of 1 points

Spectral types are used to classify stars according to:

Selected Answer: b. temperature.

Correct Answer: c. temperature.

Response Feedback: FEEDBACK: Spectral types are organized according to surface temperature. Different absorption lines are prominent at different temperatures, and peak wavelengths also depend on temperature (page 403). See also, Spectrum Explorer.

Question 13

1 out of 1 points

The composition of stars is determined by analyzing:

Selected Answer: a. absorption spectra.

Correct Answer: a. absorption spectra.

Response Feedback: FEEDBACK: The chemical composition of stars can be determined from their absorption spectral lines (page 405). See also, Spectrum Explorer.

Question 14

1 out of 1 points

The most prominent ingredient in stars is:

Selected Answer: b. hydrogen.

Correct Answer: d. hydrogen.

Response Feedback: FEEDBACK: Hydrogen makes up over 90 percent of the atoms in the atmosphere of a star, and the rest of the atoms are mostly helium. There are only trace amounts of

other heavier elements (page 405). See also, Stellar Spectrum.

Question 15 1 out of 1 points

The mass of a star can be directly determined by knowing its:

Selected Answer: d. gravitational force on another object.

Correct Answer: b. gravitational force on another object.

Response Feedback: FEEDBACK: The mass of a star cannot be reliably determined by its luminosity or temperature but rather by its gravitational effect on another star or planet (page 409). See also, Solar System Formation.

Question 16 1 out of 1 points

Binary star systems orbit around:

Selected Answer: c. the center of mass of the two stars.

Correct Answer: c. the center of mass of the two stars.

Response Feedback: FEEDBACK: The two stars in a binary star system orbit about their common center of mass. The center of mass is always closer to the more massive body (page 409).

Question 17 1 out of 1 points

Comparing the size of Doppler shift of the two objects in a binary system tells us their relative:

Selected Answer: c. masses.

Correct Answer: c. masses.

Response Feedback: FEEDBACK: The size of the Doppler shift from each of the two stars is proportional to their velocities. A more massive star makes a smaller orbit and therefore moves more slowly than the less massive star, so the Doppler shift allows us to determine the ratio of the masses of the two stars (page 411).

Question 18 1 out of 1 points

An eclipsing binary system can tell us the mass of stars if we analyze

the:

Selected Answer: c. period of the orbits.

Correct Answer: d. period of the orbits.

Response Feedback: FEEDBACK: If we know the average separation between the two stars as well as the orbital period, we can determine the sum of their masses. If we measure either the size of each of their orbits or their relative velocities independently, we can determine each mass (page 410).

Question 19 1 out of 1 points

On an H-R diagram, the hottest stars are always found at the:

Selected Answer: a. left.

Correct Answer: a. left.

Response Feedback: FEEDBACK: Star temperatures are plotted along a horizontal axis with the hottest stars on the left and the coolest stars on the right (page 414). See also, HR Explorer.

Question 20 1 out of 1 points

On an H-R diagram, the most luminous stars are always found at the

Selected Answer: c. top.

Correct Answer: c. top.

Response Feedback: FEEDBACK: Along the vertical axis of the H-R diagram, luminosity is plotted with lowest luminosity at the bottom and highest at the top(page 414). See also, HR Explorer.

Question 21 1 out of 1 points

Where would the largest diameter stars be found on an H-R diagram?

Selected Answer: d. upper right

Correct Answer: c. upper right

Response Feedback: FEEDBACK: The luminosity of a star increases with its radius because a star that is larger has more surface area over which to radiate. A star with a higher surface temperature also will radiate more energy. The very

largest stars must be the ones that are on the top right of the diagram because they are cooler than the stars on the left; to be so luminous, their size must compensate for their lower temperature (page 415). See also, HR Explorer.

Question 22 1 out of 1 points

Ninety percent of stars are:

Selected Answer: b. on the main sequence.

Correct Answer: b. on the main sequence.

Response Feedback: FEEDBACK: The main sequence is the location of a star for the longest period of its life, and observational evidence of over 16,000 stars from the Hipparcos satellite confirms that 90 percent are on the main sequence (page 416). See also, HR Explorer.

Question 23 1 out of 1 points

Where would main-sequence stars with the largest mass be found on the H-R diagram?

Selected Answer: a. upper left

Correct Answer: a. upper left

Response Feedback: FEEDBACK: Stars on the main sequence increase in mass from the lower right to the upper left. This is consistent with the fact that a higher-mass star on the main sequence must be more luminous and will have a higher temperature (page 416). See also, HR Explorer.

Question 24 1 out of 1 points

Which characteristic of a star determines all other characteristics?

Selected Answer: a. mass

Correct Answer: b. mass

Response Feedback: FEEDBACK: The mass of a main-sequence star determines its main-sequence luminosity, temperature, size, and even lifetime (page 417). See also, HR Explorer.

Question 25 1 out of 1 points

What characteristic of a star is defined by its luminosity class?

Selected Answer: a. size

Correct Answer: a. size

Response Feedback: FEEDBACK: Luminosity classes I through IV are designated for large stars (supergiants, giants, subgiants) plotted above the main sequence, and WD class refers to small, hot stars below the main sequence. To classify a star, it is necessary to know its luminosity class as well as its spectral type (page 418). See also, HR Explorer.

Tuesday, February 17, 2015 12:15:34 PM EST

← OK