

M O D E R N E A R T H S C I E N C E

Chapter 27

Stars and Galaxies**Review**

Choose the best response. Write the letter of that choice in the space provided.

- _____ 1. In the majority of stars, the most common element is
a. oxygen. b. helium. c. hydrogen. d. sodium.
- _____ 2. The color of the hottest stars is
a. red. b. yellow. c. green. d. blue.
- _____ 3. Stars appear to move in circular paths around Polaris because
a. the earth rotates on its axis.
b. the earth orbits the sun.
c. the stars revolve around Polaris.
d. Polaris is the center of the Milky Way Galaxy.
- _____ 4. The change in position of a nearby star compared with the position of a faraway star is called
a. parallax. b. red shift. c. blue shift. d. a Cepheid variable.
- _____ 5. The brightest stars have apparent magnitudes that are
a. over +20. b. between +10 and +19.
c. between +1 and +9. d. negative numbers.
- _____ 6. The absolute magnitude of a star is
a. the relative brightness of the star.
b. the true brightness of the star.
c. the comparative brightness of the star.
d. the apparent brightness of the star.
- _____ 7. A protostar becomes a star when it begins to
a. develop a red shift. b. generate energy.
c. shrink and spin. d. explode as a nova.
- _____ 8. A main-sequence star generates energy by fusing
a. nitrogen into iron. b. helium into carbon.
c. hydrogen into helium. d. nitrogen into carbon.

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_____ 9. A dying star can shed some of its gases as a

- a. planetary nebula.
- b. white dwarf.
- c. globular cluster.
- d. supernova.

_____ 10. Black holes are difficult to locate because they

- a. move very quickly.
- b. do not give off light.
- c. have very low gravity.
- d. are far away from any stars.

_____ 11. A pattern of stars is called a

- a. galaxy.
- b. nebula.
- c. pulsar.
- d. constellation.

_____ 12. Stars appear in fixed locations in the sky because they

- a. are so far from the earth.
- b. do not move.
- c. are all moving toward the earth.
- d. are all in the same galaxy.

_____ 13. The basic types of galaxies are

- a. spiral, elliptical, and irregular.
- b. barred, elliptical, and open.
- c. spiral, quasar, and pulsar.
- d. open, binary, and globular.

_____ 14. Quasar formation is associated with

- a. nuclear fusion.
- b. main-sequence stars.
- c. the explosion of a supernova.
- d. the early universe.

Critical Thinking

Read each question or statement and answer it in the space provided.

1. If the spectrum of a star indicates that the star shines with a red light, approximately what is the surface temperature of the star?

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Read each question or statement and answer it in the space provided.

2. Why are different constellations visible during different seasons of the year?

3. Explain why Polaris is considered to be a very bright star even though it is not a bright star in the earth's sky.

4. Why does heat build up more rapidly in a massive protostar than in a less massive one?

5. Explain why an old main-sequence star will be composed of a higher percentage of helium than will a young main-sequence star.

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Read each question or statement and answer it in the space provided.

6. If all galaxies began to show blue shifts, what would this indicate about the fate of the universe?

Application

Read each question or statement and answer it in the space provided.

1. If you determined that a certain star displayed a large parallax, what could you say about its distance from the earth?

2. Suppose that a scientist has discovered a red-dwarf star. Describe the likely size and surface temperature of such a star.

3. When looking through a nearby university's telescope, you observed a galaxy that has no young stars and contains little dust or gas. What kind of galaxy were you probably looking at?

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