

Standard 1 Objective 3

Chapter 30: Section 2: Directed Reading Pages 781-788

Section: Stellar Evolution (page 781)

- _____ 1. Why are astronomers not able to observe the entire life of any star?
- a. because of the movement of stars
 - b. because a star typically exists for billions of years
 - c. because the light of stars reaches Earth millions of years later
 - d. because a star typically does not exist long enough to be observed

CLASSIFYING STARS (page 781)

2. What is the Hertzsprung-Russell diagram?

3. What is the main sequence?

STAR FORMATION (page 782)

- _____ 4. What is a nebula?
- a. a cloud of gas and dust where a star begins
 - b. an explosion where dust collects
 - c. a false image of a star
 - d. a group of planets where a star begins

5. A Nebula commonly consists of about _____ % hydrogen, _____ % helium, and _____ % heavier elements.

- _____ 6. What is Newton's law of universal gravitation?
- a. None of the objects in the universe attract each other through gravitational force.
 - b. All objects in the universe attract each other through magnetic force.
 - c. None of the objects in the universe attract each other through magnetic force.
 - d. All objects in the universe attract each other through gravitational force.

- _____ 7. Gravitational force increases as the mass of an object
- a. decreases or as the distance between two objects decreases.
 - b. increases or as the distance between two objects increases.
 - c. increases or as the distance between two objects decreases.
 - d. decreases or as the distance between two objects increases.

8. What is a protostar?

9. What happens as more matter is pulled into a protostar?

10. What is nuclear fusion?

11. What is important about the onset of fusion?

THE MAIN-SEQUENCE STAGE (783)

12. What happens during the main sequence stage?

- _____ 13. What is the second and longest stage in the life of a star?
- a. the fusion stage
 - b. the stellar equilibrium stage
 - c. the main-sequence stage
 - d. the nebula stage
- _____ 14. A star that has the same mass as the sun's mass
- a. stays on the main sequence for about 10 million years.
 - b. stays on the main sequence for about 10 billion years.
 - c. stays on the main sequence for about 14 billion years.
 - d. stays on the main sequence for about 100 billion years.

LEAVING THE MAIN SEQUENCE (page 784)

15. When does a star enter its third stage?

THE FINAL STAGES OF A SUNLIKE STAR (page 785)

16. In the evolution of a medium-sized star, when will fusion in the star stop?

17. What is a planetary nebula?

18. What is a white dwarf?

19. Describe a supernova.

THE FINAL STAGES OF MASSIVE STARS ((page 786)

20. What happens to the carbon atoms in a collapsing Massive Star as temperatures rise and fusion begins again?

21. Fusion continues until the core is almost entirely made of _____.

- _____ 22. Fusion of iron into heavier elements takes
- a. time, a whole lot of precious time.
 - b. money, whole lot of spending money.
 - c. energy from the star, rather than giving off energy.
 - d. tickets, two tickets to paradise.

23. What is released as the core of the star collapses?

24. What is a neutron star?

25. What is a black hole?