

Quiz Chapter 10 Answers

10-1. Protostars are not seen in visible light telescopes because:

- a) they don't emit any radiation
- b) they are surrounded by clouds of gas and dust **X**
- c) they only emit infrared radiation
- d) they are all moving away from Earth so fast that their visible light is Doppler shifted into the infrared

10-2. A brown dwarf is best described as:

- a) a low mass object that doesn't fuse in its core **X**
- b) a low mass main sequence star
- c) a high mass main sequence star

10-3. Why are A-type main sequence stars hotter than G-type main sequence stars?

- a) A-type stars have cores of metal, whereas G-type stars do not
- b) A-type stars have more fusion on their surface than G-type stars
- c) A-type stars have more fusion in their cores than G-type stars **X**
- d) A-type stars fuse in their cores and near their surfaces, while G-type stars only fuse in their cores.

10-4. Where on the H-R diagram are the majority of stars located?

- a) as white dwarves
- b) on the main sequence **X**
- c) as giants
- d) as supergiants

10-5. Which type of star is forming iron in its core?

- a) supergiant **X**
- b) giant
- c) main sequence
- d) white dwarf

10-6. The Orion nebula is

- a) a reflection nebula illuminated by newly formed stars.
- b) an emission nebula heated by newly formed stars. **X**
- c) a supernova remnant.
- d) a dark nebula.

10-7. What happens when a protostar joins the main sequence?

- a) Its surface area increases significantly.
- b) Its luminosity increases significantly.
- c) Nuclear fusion begins in its core. **X**
- d) Nuclear fission begins in its core.

10-8. An object is found that emits most of its electromagnetic radiation in the infrared. This object could be a

- a) protostar. X
- b) G-type star.
- c) B-type star.
- d) cool gas cloud.

10-9. We see an emission nebula via

- a) reflected blue light from a nearby star.
- b) blue light emitted by hot (excited) hydrogen atoms.
- c) red light emitted by hot (excited) hydrogen atoms. X
- d) reflected red light from a nearby star.

10-10. Which of the following are thought to be mechanisms that cause a giant molecular cloud to collapse and form a protostar?

- a) The shockwave from a nearby supernova
- b) The shockwave from a newly formed high-mass star that is nearby
- c) The shockwave experienced by the cloud as it passes through a spiral arm
- d) All of the above X

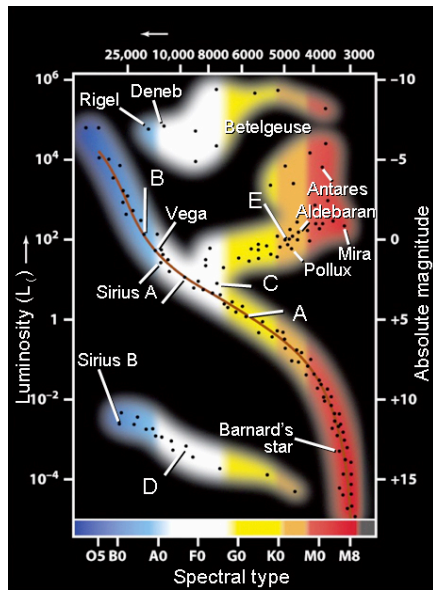
10-11. Why does the core of a star contract during its time on the main sequence?

- a) The temperature of the core decreases.
- b) The temperature of the core increases.
- c) As neutrinos build up the pressure the core is reduced.
- d) The number of particles in the core decreases (four hydrogen nuclei are fused into one helium nucleus). X

10-12. Red giants burn helium via nuclear fusion in their core. The ash (end product) of this nuclear fusion is

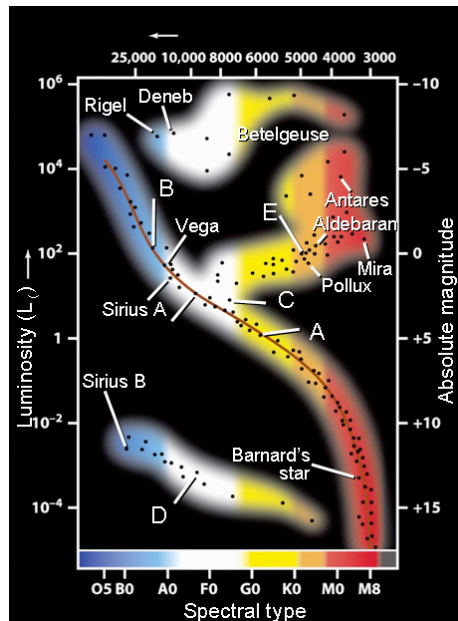
- a) iron.
- b) hydrogen.
- c) lithium and carbon.
- d) carbon and oxygen. X

10-13. Where is the Sun located on this H-R diagram?



- a) A X
- b) B
- c) C
- d) D
- e) E

10-14. Which stars on this H-R diagram are on the main sequence?



- a) Vega, Sirius A, and Mira
- b) Stars at letters A and B and Barnard's Star X
- c) Sirius A and Sirius B
- d) Rigel and Deneb
- e) Pollux and Barnard's Star

Chapter 10 Thought/Writing Questions

10-15. Starting from the main sequence, what stages of stellar evolution will the Sun undergo?

Red Giant White Dwarf

10-16. What stars will eventually end up composed entirely of helium, and why?

“Red Dwarfs” transport Helium out of their cores, cooler denser Hydrogen move downward to center and fuse to Helium

Misconception-Based Questions

10-17. True or False: Stars are still forming today.

a) True X

b) False

10-18. True or False: More massive stars shine longer than do lower mass stars?

a) True

b) False X