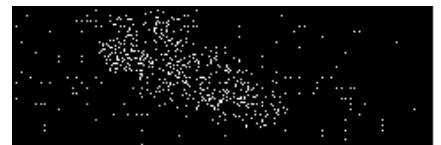


- ___ 11) The star Naos is very massive and will not remain in the main sequence very long. It will quickly use up the hydrogen in its core, expand, and turn into a giant, supergiant, or even end its life in a supernova. Naos is an example of a
- A) blue star. C) red dwarf.
B) white dwarf. D) dwarf.
- ___ 12) A ___ is an object so dense that nothing can escape its gravity field.
- A) supernova C) black hole
B) neutron star D) supergiant
- ___ 13) Stars similar to the sun are called
- A) white dwarfs. C) red dwarfs.
B) dwarfs. D) red giants.
- ___ 14) According to the big bang theory, all contents of the universe were gathered together under extreme ___ in a very tiny spot.
- A) pressure C) density
B) temperature D) All of the above
- ___ 15) When our sun runs out of hydrogen in its core, its center will shrink inward and the outer parts will expand outward. The atmosphere will grow very large and cool, and the sun will become a
- A) white dwarf. C) red giant.
B) red dwarf. D) supergiant.
- ___ 16) A main sequence star becomes a ___ after it uses up the hydrogen in its core.
- A) nebula C) black hole
B) supernova D) giant
- ___ 17) A cluster of stars forms in a nebula. There are red stars, blue stars, yellow stars, and white stars. Which stars are most like the sun?
- A) red C) blue
B) yellow D) white
- ___ 18) Which of the following statements supports the big bang theory?
- A) All galaxies move away from each other.
B) Cosmic background radiation fills all of space.
C) Energy can turn into matter.
D) all of the above
- ___ 19) Our Sun is all of the following EXCEPT ____.
- A) part of a binary system C) a yellow star
B) a main sequence star D) of average absolute magnitude
- ___ 20) The Big Bang theory of the formation and expansion of the universe is supported by the observed ____.
- A) blue-violet shift in light beyond the Local Group
B) red shift in light beyond the Local Group
C) gravity of matter
D) shorter light wavelengths

Examine the illustrations of galaxies below, and answer the questions that follow.

- ___ 21) Illustration **B** is a(n)
- A) spiral galaxy. C) irregular galaxy.
B) elliptical galaxy D) quasar.
- ___ 22) Illustration **C** is a(n)
- A) spiral galaxy. C) irregular galaxy.
B) elliptical galaxy. D) quasar.



A



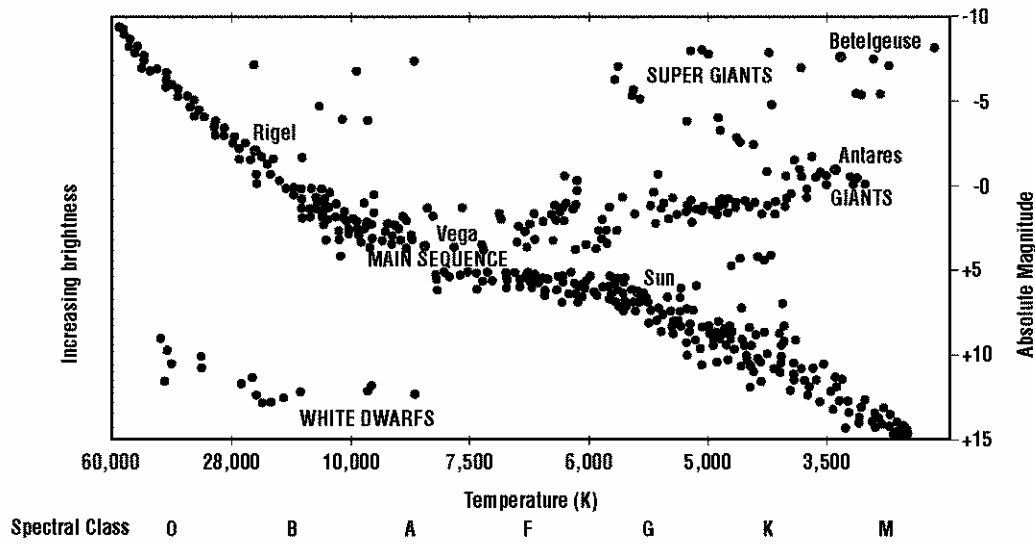
B



C

Short Answer

Directions: Use the diagram to help you answer the following questions.

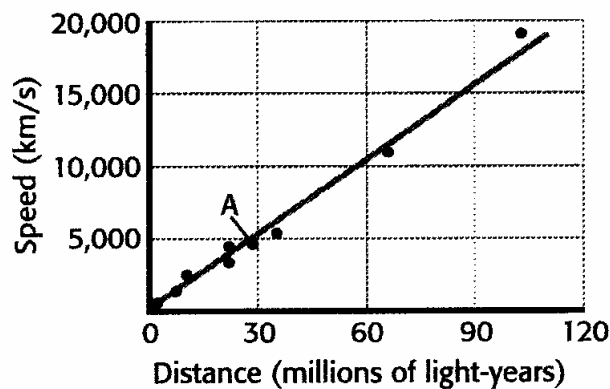


23) Use an answer box. Is the Sun brighter than a white dwarf? Explain your reasoning.

24) Use an answer box. If the Doppler shift indicated that the shift was to blue-violet on the spectrum, what would this indicate about the motion of the galaxies? Explain your answer.

The following graph illustrates the Hubble law relating the distances of galaxies and their speed away from us.

Galaxy Speed vs. Distance

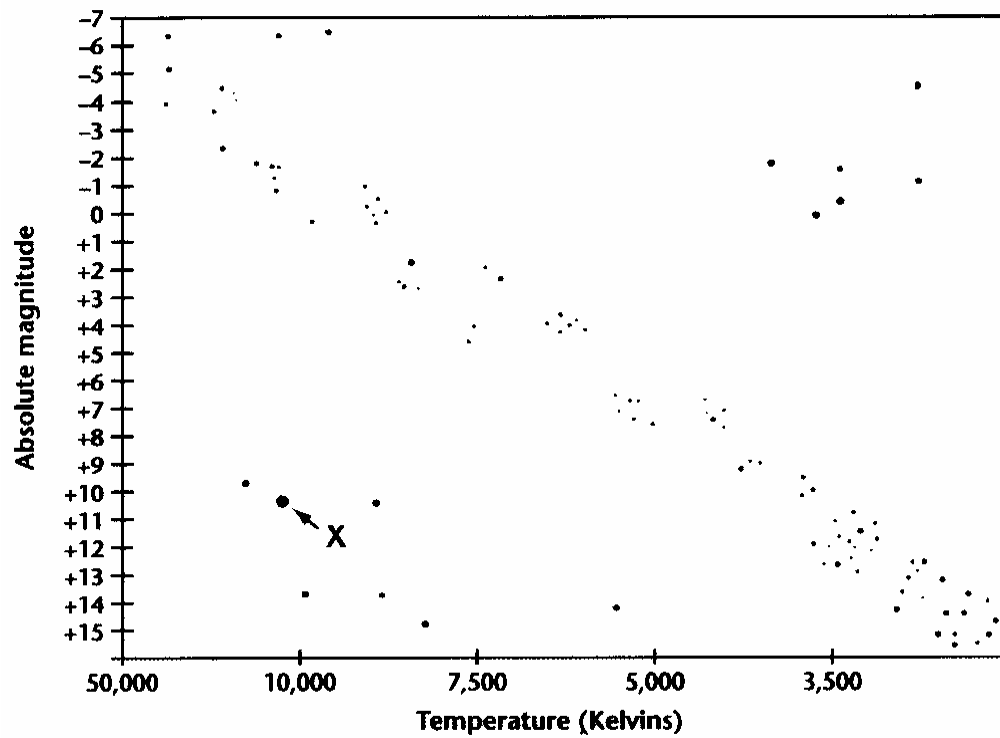


25) Use an answer box. Look at the galaxy marked A in the graph. What is its speed and distance?

26) If a new galaxy with a speed of 15,000 km/s were found, at what distance would you expect it to be?

- 27) Use an answer box. Given that there are more low-mass stars than high-mass stars in the universe, predict if in the future there will be more white dwarfs or more black holes? Justify your answer.

Analyze this H-R diagram and complete the items that follow.



- 28) Use an answer box. Describe the temperature and brightness of the star marked with an X.

- 29) Use an answer box. What does the big bang theory have to say about how the universe will end?