

Alcuni test sulle nebulose e l'ISM

1. Which of the following is evidence that the spaces between the stars are not totally empty?
 - a. The interstellar extinction of starlight.
 - b. The presence of absorption lines of singly-ionized calcium in the spectra of hot stars.
 - c. Absorption lines in stellar spectra that are much thinner than the other spectral lines.
 - d. Some stars appear redder than they should, based on their spectral types.
 - e. All of the above.

9. How can the HII intercloud medium be much hotter than neutral HI clouds, and yet have about the same pressure?
 - a. Gas pressure and temperature are not related in the near vacuum of space.
 - b. The HI clouds have a greater abundance of heavy elements.
 - c. The HII intercloud medium has a greater abundance of heavy elements.
 - d. The HI clouds have greater density.
 - e. The HII intercloud medium has greater density.

13. At what wavelength can we observe the "hot coronal gas" component of the interstellar medium?
 - a. X-ray.
 - b. Ultraviolet.
 - c. Infrared.
 - d. Both a and b above.
 - e. All of the above.

14. What effect do dust grains have on the gas in a giant molecular cloud?
 - a. Dust grains shield molecules from destructive ultraviolet radiation.
 - b. Gas atoms can find partners on the surfaces of dust grains and form molecules.
 - c. Dust grains shield molecules from destructive radio waves.
 - d. Both a and b above.
 - e. All the above.

17. Carbon monoxide (CO) molecules absorb thermal energy through collisions with other molecules inside giant molecular clouds. Each CO molecule de-excites by emitting a radio photon with a wavelength of 2.6 mm. What effect does this process have on the giant molecular cloud?
 - a. It decreases the density of the cloud.
 - b. It cools the cloud.
 - c. It warms the cloud.
 - d. Both a and b above.
 - e. Both a and c above.

19. What effect does a supernova event have on the interstellar medium?
 - a. Such events are the sources of the hot coronal gas.
 - b. Material is injected into the interstellar medium.
 - c. They create low-density expanding bubbles in the interstellar medium.
 - d. Both a and c above.
 - e. All of the above.

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1 e

9 d

14 d

17 b

19 e

13 d