

Closed book, closed notes. Clearly circle ("O") the one choice that you think is most definitely correct. Cross out ("X") only one choice that you think is definitely incorrect.

1. [4.0 points.] On the sun, sunspots appear darker than the photosphere, because these sunspots:
 - (A) are cooler.
 - (B) absorb light.
 - (C) lack hydrogen.
 - (D) sink downwards.

2. [4.0 points.] The absorption lines of a star are produced by:
 - (A) parallax.
 - (B) electrons moving to lower energy levels.
 - (C) blackbody radiation passing through diffuse, cool gas atoms.
 - (D) the difference between apparent magnitude and absolute magnitude.

3. [4.0 points.] Absorption lines of star moving towards Earth will have slightly _____ than absorption lines of a stationary star.
 - (A) smaller parallaxes.
 - (B) shorter wavelengths.
 - (C) brighter luminosities.
 - (D) brighter apparent magnitudes.

For questions (4)-(6), the apparent magnitudes and absolute magnitudes of two stars are listed at right.

	m apparent magnitude	M absolute magnitude
Aldebaran	+0.9	-0.6
Capella Ab	+0.9	+0.4

4. [4.0 points.] As seen from Earth, the star that seems dimmest is:
 - (A) Aldebaran.
 - (B) Capella Ab.
 - (C) (There is a tie.)
 - (D) (Not enough information is given.)

5. [4.0 points.] When placed at 10 parsecs away, the star that is dimmest is:
 - (A) Aldebaran.
 - (B) Capella Ab.
 - (C) (There is a tie.)
 - (D) (Not enough information is given.)

6. [4.0 points.] The star that is farthest away from Earth is:
 - (A) Aldebaran.
 - (B) Capella Ab.
 - (C) (There is a tie.)
 - (D) (Not enough information is given.)

7. [4.0 points.] Giants and supergiants are very common in the night sky, as seen from Earth with the naked eye, because they:
 - (A) have low luminosities.
 - (B) are visible from very far away.
 - (C) are much closer than 10 parsecs.
 - (D) have long main-sequence lifetimes.

Questions (8)-(10) are continued on the back of this page.

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This quiz continues from questions (1)-(7) on the other side of this page.

8. [4.0 points.] Which star is the hottest?
 - (A) A5 main sequence star.
 - (B) F0 supergiant.
 - (C) B5 white dwarf.
 - (D) M0 red dwarf.
 - (E) (There is a tie.)

9. [4.0 points.] An A5 white dwarf has a _____ than a G5 supergiant.
 - (A) brighter luminosity.
 - (B) larger size.
 - (C) hotter temperature.
 - (D) (Two of the above choices.)
 - (E) (All of the above choices.)
 - (F) (None of the above choices.)

10. [4.0 points.] A B5 main sequence star and an M5 giant could have the same:
 - (A) luminosity.
 - (B) size.
 - (C) temperature.
 - (D) (Two of the above choices.)
 - (E) (All of the above choices.)
 - (F) (None of the above choices.)

