

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.] Fusion requires high temperatures such that nuclei can:
 - (A) capture electrons.
 - (B) overcome repulsion.
 - (C) undergo convection.
 - (D) break heavy elements apart.

2. [4.0 points.] Massive main-sequence stars are more luminous than low-mass main-sequence stars because massive main-sequence stars:
 - (A) lack hydrostatic equilibrium.
 - (B) have unstable heavy elements.
 - (C) have more convection.
 - (D) fuse hydrogen more rapidly.

3. [4.0 points.] The pink color of an emission nebula is caused by:
 - (A) supernovae shockwaves.
 - (B) scattered light from stars.
 - (C) electrons moving to lower orbitals.
 - (D) light blocked by dense clouds of gas and dust.

4. [4.0 points.] Young stars at shockwave edges is evidence that _____ trigger star formation.
 - (A) supernova explosions.
 - (B) planetary nebulae.
 - (C) x-ray pulsar beams.
 - (D) gravitational waves.

5. [4.0 points.] A star cluster with supergiants would also have _____ at the same time.
 - (A) massive protostars.
 - (B) medium-mass main sequence stars.
 - (C) white dwarfs.
 - (D) red dwarfs.

6. [4.0 points.] In the final stages of fusion energy production, supergiants will fuse:
 - (A) hydrogen.
 - (B) helium.
 - (C) carbon, and heavier elements up to iron.
 - (D) (None of the above choices.)

7. [4.0 points.] A _____ main-sequence star will become a black hole.
 - (A) massive.
 - (B) medium-mass.
 - (C) low-mass.
 - (D) (Two of the above choices.)
 - (E) (All of the above choices.)
 - (F) (None of the above choices.)

Name (last, first):

4-digit PIN:

Quiz 6

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.] A type Ia supernova begins when a white dwarf:
- (A) has too much radioactivity.
 - (B) generates strong stellar winds.
 - (C) removes energy from its core using fusion.
 - (D) accumulates enough hydrogen from a companion star.
9. [4.0 points.] The energy source for a type II supernova is:
- (A) gravitational contraction.
 - (B) the fusion of an entire white dwarf.
 - (C) the fusion of elements heavier than iron.
 - (D) the fusion of an outer layer of hydrogen around a white dwarf.
10. [4.0 points.] A _____ with a companion star can have x-ray pulses.
- (A) white dwarf.
 - (B) neutron star.
 - (C) black hole.
 - (D) (Two of the above choices.)
 - (E) (All of the above choices.)
 - (F) (None of the above choices.)

