PRACTICE EXAM

Difficulty: MEDIUM

Questions: 10

Star Deaths Exam

Instructions: Please answer all questions to the best of your ability.

Section 1: Multiple Choice (4 points each, 40 points total)

Question 1: What are stars primarily composed of?
A) Iron and Carbon
B) Oxygen and Nitrogen
C) Hydrogen and Helium
D) Gold and Silver

Question 2: What triggers the formation of a star from a stellar nebula?
A) Nuclear fission
B) Chemical reactions
C) Gravitational collapse
D) Electromagnetic radiation

Question 3: What is the main process occurring in the core of a star during its main sequence phase?
A) Gravitational contraction
B) Nuclear fission
C) Nuclear fusion
D) Chemical combustion

Question 4: What causes a massive star to explode in a supernova?
A) Depletion of hydrogen
B) Formation of an iron core
C) Decrease in gravity
D) Increase in temperature

Question 5: What is a key characteristic of pulsars?
A) They emit no radiation
B) They have extremely low density
C) They are powered by nuclear fission
D) They emit beams of electromagnetic radiation

Section 2: Short Answer (6 points each, 30 points total)

Question 6: Briefly describe the process of nuclear fusion in a star.

Question 7: Explain why planetary nebulas exhibit distinct and vibrant colors.

Question 8: What is the significance of studying star deaths in understanding the composition of the universe?

Section 3: Problem-Solving (10 points each, 30 points total)

Question 9: Compare and contrast the formation of a planetary nebula and a neutron star. How does the initial mass of the star influence its eventual fate?

Question 10: Explain how the discovery of pulsars has benefited astronomers beyond their use as precise timekeepers. Give a specific example.