

PRACTICE EXAM

Difficulty: MEDIUM

Questions: 10

Star Deaths Exam

Instructions: Please answer all questions to the best of your ability. Read each question carefully before answering.

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

Instructions: Choose the best answer for each question and mark the corresponding letter.

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 is the primary process occurring in the main sequence of a star's life cycle?

- A) Gravitational collapse
- B) Nuclear fission
- C) Chemical reactions
- D) Nuclear fusion

Question 3: What is a planetary nebula formed from?

- A) The explosion of a massive star
- B) The outer layers shed by an average-sized star as it dies
- C) The collision of two neutron stars
- D) The initial collapse of a stellar nebula

Question 4: What are pulsars?

- A) A type of stellar nebula
- B) A type of black hole
- C) A type of planetary nebula
- D) A type of neutron star

Question 5: In which year did the University of Hawaii watch a red supergiant explode for the first time?

- A) 1840
- B) 185 AD
- C) 2020
- D) 1960

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

Instructions: Answer the following questions in 2-3 sentences.

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

Question 7: Explain why the study of stars is crucial to understanding the elements found on Earth.

Question 8: What happens to a star when it produces iron in its core?

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

Instructions: Answer the following questions with detailed explanations.

Question 9: Compare and contrast the formation of a planetary nebula and a neutron star.

Question 10: Describe how the periodic pulses from pulsars are generated and explain their significance as tools for astronomers.