

# 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.

### # Multiple Choice Questions (4 points each, 40 points total)

Instructions: Choose the best answer for each question.

**Question 1:** What are stars primarily composed of?

- A) Iron and Oxygen
- B) Carbon and Nitrogen
- C) Hydrogen and Helium
- D) Gold and Silver

**Question 2:** What triggers a supernova in a massive star?

- A) The fusion of hydrogen into helium.
- B) The formation of a planetary nebula.
- C) The collapse of the iron core.
- D) The increase in size into a red giant.

**Question 3:** What is the main process by which stars produce energy?

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

**Question 4:** What is a key characteristic of pulsars?

- A) They are cold and emit no radiation.
- B) They emit beams of electromagnetic radiation.
- C) They are only visible during the day.
- D) They are less accurate than atomic clocks.

**Question 5:** Which of the following is NOT a key element found in planetary nebulae?

- A) Hydrogen
- B) Oxygen

- C) Nitrogen
- D) Iron

## **# Short Answer Questions (6 points each, 30 points total)**

Instructions: Answer each question in 2-3 complete sentences.

**Question 6:** Explain the process of how stars are formed.

**Question 7:** Describe the characteristics of a neutron star.

**Question 8:** How do planetary nebulae get their colorful appearance?

## **# Problem-Solving Questions (10 points each, 30 points total)**

Instructions: Answer each question thoroughly, showing all relevant steps and reasoning.

**Question 9:** Explain how the death of stars contributes to the formation of new elements in the universe and provide one specific example.

**Question 10:** How has the observation of stars advanced over time based on Chinese astronomers in 185 AD, Ali ibn Ridwan and the University of Hawaii?