# PRACTICE EXAM

# Difficulty: MEDIUM

# Questions: 10

# Star Death Exam
Instructions: Please answer all questions to the best of your ability.

## Multiple Choice Questions (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:** Which of the following is NOT a stage in the life cycle of a star?
A) Protostar
B) Main Sequence
C) Black Hole
D) Red Giant

**Question 3:** What is the process by which stars produce energy?
A) Chemical Reactions
B) Nuclear Fission
C) Gravitational Compression
D) Nuclear Fusion

**Question 4:** What celestial body is known for emitting beams of electromagnetic radiation?
A) Red giant
B) Planetary nebula
C) Pulsar
D) Protostar

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

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

**Question 5:** Briefly describe how a planetary nebula is formed.

**Question 6:** What is the significance of the discovery made by the University of Hawaii in 2020 regarding a red supergiant?

**Question 7:** Explain why the study of star deaths is crucial to understanding the composition of the Earth and the universe.

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

Instructions: Provide detailed answers, demonstrating your understanding of the concepts.

**Question 8:** Compare and contrast the death of an average-sized star with the death of a massive star, highlighting the different end products (planetary nebula vs. neutron star) and processes involved.

**Question 9:** Describe the process of nuclear fusion in a star. What elements are involved, and how does this process produce energy?

**Question 10:** Explain how the properties of pulsars make them useful tools for astronomers. Be specific about the properties and their applications.