

This exam is closed book with no notes allowed. You will not need a calculator.

Don't forget to write your name on the page.

There are 16 questions below [in the real exam, that is. Here there are only seven.]. You must answer 12 of them. If you answer more, your lowest scores will be discarded. All of these questions can be answered in less than two or three sentences. If you find yourself wanting to write more, chances are you're not quite finding the central, pivotal "point" to the question.

1. Why do red dwarfs live a very long time?
2. List the four forces of nature. Which is the strongest, and what does it do?
3. Why do high mass stars explode?
4. What is gravitational lensing?
5. Name the three types of black holes. Pick one, and give a one-sentence description of how it is formed.
6. What is a baryon? Give an example of a baryon.
7. According to the Dyson Scaling Hypothesis, would a life form in the black hole era think faster or slower than we do? Why?