

**Astronomy 2310**  
**Instructor: Professor Michael Brotherton**

**Exam 1 – practice questions**  
**Tuesday, February 16**

This exam covers chapters 1-4 of Ryden and Peterson's text Foundations of Astrophysics. Calculators are allowed. The appendices of the text providing various constants and values required for the exam are given on the final pages. Please write all answers clearly and use good English. Box final answers when calculations are required. Use units when appropriate. Show your work. Draw pictures when helpful.

*Write your name on every page in case pages become separated!*

**Part 1**

**Short Answers (Do ONLY 8 of 10 questions, 5 points each)**

1. What observation did Galileo make that distinguished between the Copernican and Ptolemaic models of the solar system?
2. What are Kepler's three laws?
3. How did the Greeks estimate the circumference of the Earth?
4. Why didn't the Greeks think the Earth moved?
5. What are the limits that bound possible orbits for moons? Name them and explain them conceptually.
6. If the moon is in first quarter phase, and seen directly overhead, what time is it?
7. Etc.
- 8.
- 9.
- 10.

*Go on to part 2 on the next page!*

## **Part 2**

### **Calculational problems (4 questions, 15 points each)**

1. A comet is observed to have an orbital semi-major axis of 50 astronomical units. What is its orbital period in years?
2. What is the altitude (in kilometers) of a geosynchronous satellite over Jupiter? (See Table A.3 for info.)
3. etc.
4. etc. (hardest/longest problem)