Homework Assignment 3, Due Wednesday, February 27, 2008

Choose the best answer for each of the following and explain your reasoning with one or more complete sentences (required for full credit). Four points each question, 20 points total. Answers must be turned in on paper; do not email. Please write your name on each sheet that you hand in.

1. Which of the following kinds of object orbits closest to the Sun on average? Relate your answer to the objects’ compositions.
   (a) comets
   (b) asteroids
   (c) jovian planets

2. Which of the following best describes the orbits of the planets? Relate your answer to the currently accepted theory of the origin of the solar system.
   (a) very eccentric ellipses, all in the same plane
   (b) fairly circular and in the same plane
   (c) fairly circular but oriented in every direction

3. In the primordial solar nebula, 98% of the original mass was in the form of
   (a) rock and metal
   (b) hydrogen compounds
   (c) hydrogen and helium

4. What is the leading theory for the origin of the Moon?
   (a) It formed in place along with the Earth, by the same process.
   (b) It formed from material ejected in an impact of a planetary body on the Earth.
   (c) It split out of a rapidly rotating Earth.

5. About how old is the solar system? Describe the current evidence supporting your answer.
   (a) 4.5 million years
   (b) 4.5 billion years
   (c) 4.5 trillion years

Extra credit on this assignment: for up to 5 questions that you missed on Quiz 3, give the correct answer, and explain why that answer is correct. Turn in your test paper and score report with this homework. (One point per question; credit only with correct explanation.)