Fourth Assignment: Sample Exam Questions
Astronomy 1020 Due: Dec. 5th, 2006
Prof. Paul J. Wiita

KEEP THIS QUESTION SHEET. Mark your answers AND the correct ones I will give you at the end of the class on Tuesday, Dec 5th on this sheet; then use it while studying for the last exam on the 7th. TAKE A SEPARATE PIECE OF PAPER AND PRINT YOUR NAME and your ANSWERS (just T or X for the 8 True/False and A, B, C, D, or E for the four multiple choice questions) NEXT TO THE NUMBER (1–12) FOR EACH QUESTION. Write (LEGIBLY!) a short paragraph for the last question, 13, which is worth 3 points, so the total is 15 (but it will be graded out of 10, providing 5 bonus points). THESE ANSWER SHEETS ARE TO BE HANDED IN AT THE BEGINNING OF CLASS ON TUESDAY DEC. 5th. If you cannot be there that day, you must e-mail your answers to me at: wiita@chara.gsu.edu by that time (and in the body of your e-mail) if you expect any credit.

1. Collisions between two comparably sized elliptical galaxies usually result in a larger elliptical.
2. The Milky Way is now usually classified as a SBc galaxy.
3. The range of masses for elliptical galaxies is less than the range of masses for spiral galaxies.
4. Hot gas in clusters of galaxies produces X-rays which makes a substantial contribution to the mass in most such clusters.
5. Radio galaxies are ellipticals with active nuclei.
6. Elliptical galaxies are classified from E0 to E6.
7. Photons left over from the formation of hydrogen atoms in the early universe currently have wavelengths peaking at just a little over 1 mm, which corresponds to about 2.7 K.
8. Only extremely small quantities of any isotopes other than $^1$H and $^3$He were produced in the primordial nucleosynthesis in the first three minutes after the Big Bang.
9. BL Lacertae objects are
   A. very rapidly variable in both radio, optical and X-ray bands
   B. active galactic nuclei
   C. found to have no or very weak emission lines
   D. both A. and B.
   E. all of A., B. and C.
10. The Schwarzschild radius of a $10^9M_\odot$ black hole would be about _______.
    A. $10^{-6}$ pc
    B. $10^{-5}$ pc
    C. $10^{-4}$ pc
    D. $10^{-3}$ pc
    E. $10^{-2}$ pc
11. If it weren’t for the fact(s) that _______, the night sky would be roughly as bright as the sun.
    A. the universe is expanding, thereby redshifting photons
    B. the age of the universe is finite, thereby imposing a horizon on what we can see
    C. the microwave background photons pervade the universe
    D. Both A and B are needed to explain Olber’s paradox.
    E. All of A, B and C are needed to explain Olber’s paradox.
12. In ranking galactic types by color, which is the correct order, from bluest to reddest?
    A. ellipticals, spirals, irregulars
    B. spirals, irregulars, ellipticals
    C. irregulars, spirals, ellipticals
    D. ellipticals, irregulars, spirals
    E. spirals, ellipticals, irregulars
13. The well-known poet Muriel Rukeyser (1913-1980) wrote in “The Speed of Darkness” that: “The universe is made of stories, not of atoms.” Do you agree or disagree? Write a single paragraph giving your reaction to that line. (3 points)