Third Set of Sample Exam Questions

Astronomy 1020 **Fall 2009**

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KEEP THIS QUESTION SHEET. Mark your answers AND the correct ones I will give you during the class on Tuesday Dec. 1st on this sheet; then use it while studying for the last exam on Thursday Dec. 3rd.

1. Collisions between two comparably sized spiral galaxies usually result in a larger spiral.
2. The Milky Way is now usually classified as a Sc galaxy.
3. The range of masses for elliptical galaxies is greater than the range of masses for spiral galaxies.
4. Hot gas in clusters of galaxies produces X-rays but makes only a very small contribution to the mass in such clusters.
5. Seyfert 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 ^{4}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 strong emission lines
   D. both A. and B.
   E. all of A., B. and C.
10. The Schwarzschild radius of a $10^8 M_\odot$ 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 reddest to bluest?
   A. ellipticals, spirals, irregulars
   B. spirals, irregulars, ellipticals
   C. irregulars, spirals, ellipticals
   D. ellipticals, irregulars, spirals
   E. spirals, ellipticals, irregulars
13. The mass of our galaxy out to its visible radius, about 15 kpc, is nearest to
   A. 4×10^5 $M_\odot$
   B. 4×10^7 $M_\odot$
   C. 4×10^9 $M_\odot$
   D. 4×10^{11} $M_\odot$
   E. 4×10^{13} $M_\odot$