

Astronomy 1143 Quiz 4 Review

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Sorry for the delay everyone, I'm extremely busy near the end of the semester and I wanted to make sure this was very understandable as I know many of you have been complaining that the powerpoints are not. I will do my best to answer questions via email between now and the quiz (but I typically go to sleep around midnight... so keep that in mind).

Supernovae

1. How massive does a star have to be in order to end its life in a supernova?
2. What causes a core-collapse supernova?

Cosmological Distance Ladder

1. What is the Distance Ladder?
2. List the “rungs,” or methods, of the Distance Ladder by increasing distance.

The Big Bang Model

1. What is the Big Bang Model?
2. What is some observational evidence for the Big Bang?

Expansion, Mass, and Density of the Universe

1. How do we know the universe is expanding?
2. What makes up the mass-energy of the universe?
3. What is dark energy?
4. What drives the expansion of the universe?
5. What slows down the expansion of the universe?
6. What is the critical density?
7. What is the parameter Ω (called “omega”)?
8. How do the different mass-energies of the universe contribute to the value of Ω ?
9. If the density of matter (dark and light) divided by the critical density is 0.3 (currently measured to be true), what would happen if there was no dark energy to make up the other 0.7 to get $\Omega = 1$?

10. What happens to the photons in the universe as the universe expands, and how does this impact the amounts of matter and radiation in the universe?
11. How do we measure the expansion of the universe and how it changes over the age of the universe?

Large Scale Structure

1. What is large scale structure?
2. Does structure in the universe increase or decrease as the universe grows older?
3. Why doesn't the expansion of the universe due to dark energy destroy large scale structure?

Miscellaneous Cosmology

(This section was on the previous quiz review but it is still useful for this quiz.)

1. What does a flat rotation curve of galaxies tell us?
2. What do we mean when we say the universe is "expanding?"
3. What is Olbers' Paradox? What is the resolution?
4. What is the 21-cm line and why is it useful for cosmology?