Assignment 11

Remember to number your answers 1a. 1b., etc. so I know which questions you're answering. Be sure to show your work and reasoning for full credit.

1. *(10 points) An astronomer in training shows you two H-R diagrams for two clusters. Cluster A's stars are on the main sequence in the upper left, with the stars in the lower-right off the main sequence, while Cluster B's stars are on the main sequence on the lower right, with stars in the upper left off the main sequence. Which is older? Explain.*

2. *(10 points) Before you can answer the astronomer in training, his advisor comes and shows you another H-R diagram in which both the upper left and the lower right are off of the ZAMS, with only the middle stars being on the main sequence. Explain this phenomenon.*

3. *(5 points) Astronomers find that 90% of stars observed in the night sky are on the main sequence, why is this the case? Why are there fewer stars in the giant and supergiant regions?*

4. *(10 points) List and compare the three types of star clusters.*

5. *(5 points) Why does the fusion of helium into carbon require such higher temperatures than hydrogen to helium?*