Assignment 8

Please type your responses into a word document, and submit that on UNM Learn. Show your work for all questions. You can take scans/pictures of your work if you put them in the word document, but don't submit them as images. Be sure to number your responses 1, 2(a), etc. so I know which question you're answering. If you get stuck, post a question on the forums. Chances are you're not the only one!

1. *(5 points) Name and give an example of five different forms of energy.*

2. *(5 points) Briefly describe two theories that were offered for the source heat of the Sun, and explain the accepted theory for the source of the heat of the Sun.*

3. *(5 points) Define the atomic binding energy. Why is it a negative number? What atom has the highest (most negative) binding energy?*

4. *(20 points) In nuclear physics we use the notation* ${}^{A}_{Z}U$*, where U is the the element (uranium in this case), A the combined number of neutrons and protons, and Z the number of protons alone. Deuterium* (${}^{2}_{1}H$) *fuses with with tritium* (${}^{3}_{2}H$) *to create Helium* (${}^{4}_{2}He$)*. The mass of deuterium is 2 u, tritium 3 u, and helium 4 u. How much energy is released in this reaction, in Joules? Use the conversion 1 u =* 1.66×10^{-27} *kg, and the definition 1 J=1* $\frac{kg\ m^2}{s^2}$.