1. From the diagram below, give the energy of the three K characteristic x-rays and two L characteristic x-rays from tungsten.

![Energy level diagram for Tungsten (W)](image)

2. (J & C 1-6) Hydrogen in nature exists as a mixture of $^1\text{H}$ and $^2\text{H}$ with atomic masses of 1.007825 and 2.014102, respectively. These occur in relative abundance 99.985% and 0.015%. Calculate the atomic weight of hydrogen.

3. (J & C 1-7) Lithium in nature consists of two isotopes of atomic masses 6.01513 and 7.01601, with percentage abundances of 7.42% and 92.58%. Find the atomic weight.

4. (J & C 1-9) A deuterium atom is made up of a proton (atomic mass 1.007276), and electron (atomic mass 0.000548), and a neutron (atomic mass 1.008665). The mass of the deuterium atom is 2.014102. Find the energy in MeV required to bring about the disintegration of the deuterium into hydrogen plus a neutron.
5. (J & C 1-10) A certain radioactive material emits gamma rays with energy 1 MeV. Another sample of radioactive material emits gamma rays with energy 10 keV. If both of these emit the same amount of energy per unit time, compare their activities.