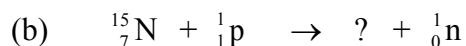
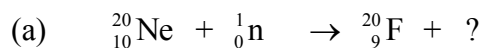
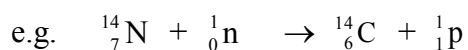


CHEM1101 Problem Sheet 2 (Week 2)

1. Balance the following nuclear reactions and identify the missing nuclide or nuclear particle. (A periodic table is provided in the handbook.)



2. ${}^{19}_9\text{F}$ is a stable nuclide. One of the following isotopes of fluorine undergoes radioactive decay by β^- emission and one decays by β^+ emission. Predict which is which and write balanced equations for the decay reactions.



3. Calculate the radiocarbon age of a sample whose ${}^{14}\text{C}$ activity is 0.344 of a modern standard.
4. Calculate the molar activity of tritium (in Curie), given its half-life of 12.26 years. [1 Ci = 3.70×10^{10} disintegrations per second.]
5. Arrange the following elements in order of increasing ionization energy:
Ne, Na, C, Mg, N, F
6. Identify three elements whose atomic radii are similar to that of Li.
7. Identify the largest and smallest of all neutral, stable atoms.