Chapter J

Nuclear Physics

J1 Nuclear Equations

$^{9}/_{11}$

Complete the nuclear equations. Don't forget the neutrino / antineutrino if it is a beta decay!

J1.1 $^{241}_{95}\text{Am} \rightarrow {}^{?}_{?}\text{Np} + ?$ Alpha decay

J1.2 $^{3}_{1}\text{H} \rightarrow {}^{?}_{?}\text{He} + ?$ Beta- decay

J1.3 (a) $^{14}_{6}\text{C} \rightarrow {}^{?}_{?}\text{N} + ?$ Beta- decay (b) $^{11}_{6}\text{C} \rightarrow {}^{?}_{?}\text{B} + ?$ Beta+ decay

J1.4 $^{60}_{27}\text{Co}^{+} \rightarrow {}^{?}_{?}\text{Co} + ?$ Gamma decay

J1.5 $^{3}_{1}\text{H} + {}^{2}_{1}\text{H} \rightarrow {}^{?}_{?}\text{He} + {}^{?}_{?}\text{n}$ Nuclear Fusion

J1.6 $^{90}_{38}\text{Sr} \rightarrow {}^{?}_{?}\text{Y} + ?$ Beta- decay

J1.7 $^{238}_{92}\text{U} \rightarrow {}^{?}_{?}\text{Th} + ?$ Alpha decay

J1.8 $^{235}_{92}\text{U} + {}^{1}_{0}\text{n} \rightarrow {}^{147}_{57}\text{La} + {}^{87}_{?}\text{Br} + ?{}^{?}_{?}\text{n}$ Nuclear Fission

J1.9 $^{23}_{13}\text{Al} \rightarrow {}^{?}_{?}\text{Mg} + ?$ Beta+ decay

And as a bonus round, the unattached neutron is unstable too.

J1.10 ${}^{?}_{?}\text{n} \rightarrow \quad ? + ? + ?$ Beta- decay