P860 10 – 12, 14, 15

(10) (a) $^{238}_{92}U$ ~ 7.5 MeV per nucleon = 1.8×10^3 MeV

(b) $^{84}_{36}Kr$ ~ 8.6 MeV per nucleon = 720 – 740 MeV (730 MeV)

(11) $^{2}_{1}H$

p: 1.007277 u

n: 1.008665 u

e: 0.000549 u

2.016491 u – 2.014102 u = 0.002389 u (931 MeV)

= 2.22 MeV

(12) ^{14}N

p: 1.007277 u (7) = 7.050589 u

n: 1.008665 u (7) = 7.060655 u

e: 0.000549 u (7) = 0.003843 u

14.115087 u – 14.003074 = .112013 u

$\frac{0.112013\ u\ (931\ MeV)}{14}$ = 7.45 MeV

(14) (a) ^{6}Li

p: 1.007277 u (3) = 3.021831 u

n: 1.008665 u (3) = 3.025995 u

e: 0.000549 u (3) = 0.001647 u

6.049473 – 6.015121 = 0.034352 u

.034352 u (931 MeV) = 32.0 MeV total; 5.33 MeV per nucleon

(b) ^{208}Pb: 1.007277 u (82) + 1.008665 u (126) + 0.000549 u (82)

= 209.733522 – 207.976636 = 1.756886 u

1.756886 u (931.5 MeV) = 1636 MeV; 7.87 MeV per nucleon.

(15) ^{23}Na = 21.994434 u

n = 1.008665 u

23.003099 u

^{23}Na – 22.989767 u

.013332 u

^{24}Na = 22.989767 u

n = 1.008665 u

23.998432 u

^{24}Na – 23.990961 u

.007471 u

$\frac{^{23}Na}{^{24}Na}$ = 1.78 MeV