1. ₩	STU	DY	CH	ECI	K

Calculate the number of protons, neutrons and electrons of  $^{99}_{43}$ Tc. Show work to get full credit

# 2. ♥ STUDY CHECK

Identify the unknown isotope in the following nuclear reaction:

Show work to get full credit

3.  $\bigoplus$  STUDY CHECK  $^{222}_{86}$ Rn has a half-life of 3.8 days. How many milligrams of a 25mg sample will remain after 15 days. Show work to get full credit

#### 4. ♥ STUDY CHECK

Quadramet is a radiopharmaceutical used treat pain when cancer has spread to the bone. A injection of this drug has a 740 MBq activity. Convert this value to mCi. Show work to get full credit

#### 5. ♥ STUDY CHECK

Identify the following reaction as fusion or fission:

$${}_{2}^{3}\text{He} + {}_{2}^{3}\text{He} \longrightarrow {}_{2}^{4}\text{He} + {}_{1}^{1}\text{H}$$

Show work to get full credit

6.

# **STUDY CHECK**

Name or give the symbols for the following nuclear particles: n,  $\alpha$  and  ${}_{1}^{1}\mathrm{H}^{+}$ .

Show work to get full credit

7.

### **STUDY CHECK**

On one hand, Methadone is a synthetic Opioid agonist used for opioid maintenance therapy in opioid dependence and for chronic pain management with a half-life of 900 seconds. On the other hand, Fluoxetine, sold under the brand names Prozac, is an antidepressant with a half-life of 4 days. Which medication will remain longer in the body and how many time is the half-life of the largest remaining drug in comparison with the other?

Show work to get full credit