1)

Consider the following nuclear processes which are used to produce isotopes used in medical imaging:

Unknown nucleus $A+ $ (equation 1)

An induced nuclear fission which occurs in two steps as shown in Equation 2 and Equation 3 below:

$$ (Equation2)

Unknown nucleus B
unknown nucleus B$\rightarrow \genfrac{}{}{0pt}{}{99}{42}$Mo+ unknown nucleus C+ 4$\genfrac{}{}{0pt}{}{1}{0 }n$ (Equation 3)

Find the mass number and atomic number for each of the unknown nuclei A, B and C, and hence identify them, Could you please explain how you came to your answer thanks, show all working out in full!!!

2)

A) Write an equation for the beta-plus decay of the oxygen isotope.

b) write an equation for beta-minus decay of the molybdenum isotope

c) write equations for each of the decays in part (a) and (b) in terms of the quarks iinvolved.

It is acceptable to write these equations for these reactions in words in which case the mass and atomic numbers must be stated where appropriate!!!