**Marks
7**

• Technetium-99m is an important radionuclide for medical imaging. It is produced from molybdenum-99. Fill in the box below to give a balanced nuclear equation for the production of Tc-99m from Mo-99.

$$^{99}_{42}\text{Mo} \quad \rightarrow \quad ^{99\text{m}}_{43}\text{Tc} \quad + \quad \boxed{}$$

The half-life of Tc-99m is 6.0 hours. Calculate the decay constant, λ, in s^{-1}.

Answer:

Calculate the molar activity in Bq mol^{-1}.

Answer:

Calculate the time in hours for 90% of the activity of a sample of Tc-99m to decay.

Answer:

Why is Tc-99m suitable for medical imaging? Give two reasons.