1. Introduce several different sorts of measure which can be used to describe the “amount” of nuclear waster.
2. A 100 mg foil of gold (197Au ) is placed in a thermal-neutron flux for 12 h. It is then set in front of a detector, which has an efficiency of 2 x 10-2 for detecting 412 keV γ rays. If the count rate in the detector, 6 h after irradiation, is 10 s-1, calculate the neutron flux near the foil. The thermal-neutron capture cross section for 197Au is 99 b. The half-life of 198Au is 2.7 days and 95% of the time, its decay results in the emission of a 412 keV γ ray.