NUCL 511 Nuclear Reactor Theory and Kinetics

Homework #5

Due February 27

1. Ch. 5, homework problem 1. Use the delayed neutron data in the lecture note 2 instead of those in Table 2-III. (10 points)
2. Ch. 5, homework problem 2 (10 points)
3. An (α, n) point source is moved in a vertical guide tube toward a swimming pool reactor core. Suppose that the adjoint flux varies along the guide tube as $\phi^*(z) = A\cos(z/100)$, where z is the distance from the core mid-plane in cm and A is a constant, and the steady state reactor power is 5 watts when the source is located 10 cm above the core mid-plane. Determine the steady state reactor power as a function of source position for the source position from 40 cm to 0 cm. (10 points)