

Answers to Even # Problems  
Homework Assignment #8  
Physics 273

- 13-4)  $\tau_{\text{neutron}} = 10.4 \text{ minutes}; R_{\text{neutron}} = 1.11 \times 10^{-3} \text{ s}^{-1}$   
 $\tau_{\text{tritium}} = 12.3 \text{ years}; R_{\text{tritium}} = 1.78 \times 10^{-9} \text{ s}^{-1}$   
no tritium left
- 13-10)  ${}^2S_{1/2} \rightarrow {}^2P_{3/2}$  allowed  
 ${}^3D_2 \rightarrow {}^1P_1$  forbidden  
 ${}^3D_{3/2} \rightarrow {}^4S_{3/2}$  forbidden  
 ${}^2D_{3/2} \rightarrow {}^2D_{5/2}$  forbidden  
 ${}^4D_{1/2} \rightarrow {}^4P_{1/2}$  allowed  
 ${}^3P_0 \rightarrow {}^1S_0$  forbidden
- 13-18)  $T = 1,300 \text{ K};$  No