Nuclear Chemistry Worksheet

1. Name the principal types of radiation.

   a) _____ b) _____

   c) _____ d) _____

   e) _____ f) _____

2. Which of the following is the <u>most</u> penetrating type of radiation? _____ Which is <u>least</u> penetrating? _____

   a) alpha b) beta c) gamma d) positrons

3. Balance these nuclear equations.

   a) $^{35}Cl + {}^{1}n \rightarrow {}^{35}S +$ _____

   b) $^{229}Th \rightarrow {}^{4}He +$ _____

   c) $^{20}O \rightarrow {}^{20}F +$ _____

   d) $^{54}Fe + {}^{1}n \rightarrow {}^{1}H +$ _____

   e) $^{104}Ag \rightarrow {}^{0}e +$ _____

   f) _____ $+ {}^{0}e \rightarrow {}^{54}Cr$

   g) $^{238}U + {}^{12}C \rightarrow {}^{246}Cf +$ _____

   h) _____ $+ {}^{0}e \rightarrow {}^{207}Pb$

4. Write balanced equations for these nuclear reactions.

   a) neutron emission by ^{88}Br

   b) electron absorption by ^{116}Sb

   c) positron emission by ^{184}Hg

   d) alpha emission by ^{229}Th

   e) neutron capture by ^{200}Hg