QUIZ 1 3446 Chapter 1 Name:

1) The Thompson "plum pudding" model of the atom
   a) was supported by Rutherford's experiment
   b) replaced the Bohr model of the atom
   c) did not have a nucleus
   d) all of the above

2) In a Rutherford experiment alpha particles incident on a gold foil

   a) are typically scattered at large angles
   b) are always scattered at small angles
   c) have a tan(x/2) angular dependence
   d) are typically scattered at small angles, but are sometimes scattered at larger angles

3) In a Rutherford experiment
   a) the impact parameter becomes smaller as the alpha particle approaches the gold foil
   b) a larger impact parameter gives a larger scattering angle
   c) for a fixed impact parameter and energy, the average scattering angle is larger for a gold (Z=79) than for copper (z=29)
   d) the impact parameter decreases with the energy of the alpha particle

4) In particle physics, a Barn is
   a) a unit of impact parameter
   b) bigger than a cow
   c) a unit of cross section
   d) a unitless quantity used to measure scattering angles

5) The total cross section
   a) is smaller than the differential cross section for that process
   b) is a very upset section
   c) is like a volume
   d) can be determined by integrating the differential cross section for that process

extra credit 5 points: what unit is more appropriate for the proton-proton total cross section ? nanobarns, microbarns, millibarns, or none of the adjacent.