

Name: \_\_\_\_\_

**Quiz 8**  
Physics 105  
4 December 2002

- 1. Control rods in a nuclear reactor are used to
  - (a) take the fuel rods out of the reactor.
  - (b) measure the temperature in the reactor.
  - ⇒ **(c) absorb neutrons and stop the chain reaction when inserted between the fuel rods.**
  - (d) absorb the heat from the nuclear reaction and slow down the fission process.
  - (e) give the operators something to play with when they're bored.
  
- 2. The known types (or flavors) of quarks are
  - ⇒ **(a) up, down, strange, charm, top and bottom.**
  - (b) up, down, left, right, top and bottom.
  - (c) up and down.
  - (d) strange, charm, truth and beauty.
  - (e) plain, vanilla, strawberry, blueberry, cassis and cherry.
  
- 3. The positron
  - (a) is a lepton.
  - (b) is the antiparticle of the electron.
  - (c) is positively charged.
  - (d) has the same mass as the electron.
  - ⇒ **(e) all of the above.**
  
- 4. All known particles in the “subatomic zoo” can be built from
  - (a) three quarks only.
  - ⇒ **(b) either three quarks or a quark-antiquark pair.**
  - (c) three, six, or nine quarks.
  - (d) cottage cheese, quark and yogurt.
  - (e) three quarks, a quark-antiquark pair or two quarks and two antiquarks .