Materials Science Handbook: Volume 2
Final Exam

1. *Thermal shock* (stress) can lead to excessive _____ on materials, which lead to excessive stresses.
   a. loading
   b. thermal gradients
   c. tension
   d. impacts

2. *Thermal shock* is caused by nonuniform _____ of a uniform material, or uniform heating of nonuniform materials.
   a. heating or cooling
   b. tensile stressing
   c. loading
   d. bonding

3. According to Table 1, the Coefficients of Linear Thermal Expansion for copper are:
   a. 9.8×10^{-5}
   b. 5.8×10^{-6}
   c. 16.3×10^{-6}
   d. 9.3×10^{-6}

4. Figure 1 illustrates how many basic fracture types?
   a. two
   b. three
   c. four
   d. none

5. *Fracture toughness* is an indication of the amount of stress required to propagate a _____ flaw.
   a. non-critical
   b. sudden
   c. preexisting
   d. new

6. *Ductility* is the plastic response to:
   a. overloading
   b. heating
   c. tensile force
   d. Gamma radiation

7. *Stability* of a material refers to its mechanical and chemical inertness under:
   a. the conditions in which it was manufactured
   b. the conditions in which it was shipped
   c. the conditions in which it was stored
   d. the conditions to which it will be subjected

8. The basic nuclear reactor fuel materials used today are the elements *uranium* and:
   a. thorium
   b. iridium
   c. radon
   d. plutonium

9. Natural *thorium* consists of:
   a. mostly trace elements
   b. uranium and plutonium
   c. multiple isotopes
   d. one isotope

10. *Shielding* design is relatively straightforward depending upon the type of:
   a. thermal stress
   b. radiation
   c. reactor
   d. fuel