MSE 2001B Quiz #7, 10-9-2015

Your name (print) _____Your major _____Score _____/10

Please **ONLY** use the space of each question to provide your answer. You will have **10 minutes** to work on this quiz. Please sign to confirm that all work on this test is yours and yours only.

Signature KEY

1. What is the measure of a material's resistance to flow? (1 pt)
   a) Critical resolved shear stress
   b) Viscosity

2. A rapidly cooled glass has a higher glass transition temperature than a slowly cooled glass of the same composition. (1 pt)
   a) True
   b) False

3. What is the crystal structure of a "glass" material? (1 pts)
   a) Crystalline
   b) Amorphous

4. If a polymer is heavily crosslinked (with a high crosslink density), it would often exhibit no elastic module at all upon heating to a temperature above its glass-transition temperature. (1 pt)
   a) True
   b) False

5. Semicrystalline contains both crystalline and amorphous regions. Sketch specific volume as a function of temperature for a semicrystalline polymer . (6 pts)

   (hint: identify critical temperatures during the liquid to semi-crystalline solid transformation; indicate the change of volumetric thermal expansion coefficient, α_v in the diagram)