Regrade policy: If you would like your test regraded, please submit a written statement to explain why. Your entire test will be regraded, so there is a possibility that points could be lost rather than gained.

Multiple Choice:

Version A: 1) d  2) c  3) b  4) c  5) b  6) c  7) a  8) d
Version B: 1) d  2) a  3) d  4) c  5) c  6) b  7) c  8) b

Problem 1: Neoclassical Model

a) \( Y_s = 12 \times 1000^{1/3} \times 1000^{2/3} = 12 \times 1000 = 12,000. \)
   \( Y_d = C + I + G = [1000 + 0.6(12,000-2000)] + [3000 - 1000r] + 2200 \)
   setting \( Y_s = Y_d: 12,000 = 12,200 - 1000r \)
   so  \(-200 = -1000r\) so \( r = 0.20 \)

   \[ \frac{W}{P} = \text{MPL} = 12(2/3)K^{1/3}L^{-1/3} = \frac{8}{1000^{1/3}1000^{1/3}} = 8 \]
   
   The equilibrium condition is that investment must equal saving.

b) Version A: a,a,b,a,c,c   Version B: b,b,a,b,c,c

c) Version A: b,b,a,b,a,b   Version B: a,a,b,a,b,a

Problem 2: Solow Growth Theory

a) golden rule condition: \( \text{MPK} = \delta + n \)
   Plugging in: \( k^\text{gold} = 0.10 \) so \( k^\text{gold} = 10 \)
   and so \( k^\text{gold} = 100 \).

b) steady state condition: \( s f(k^*) = (\delta+n)k^* \)
   plugging in: \( s \times 2(100)^{1/2} = 0.10 \times 100 \) so \( 20s = 10 \), so \( s = 0.5 \).
   Solve for consumption: \( c = (1-s)y = (1-s)2k^*^{1/2} = (1-0.5)2(100^{1/2}) = 0.5 \times 20 = 10 \).

c) A saving rate lower than 0.5 would result in less saving and investment, so that only a smaller capital stock could be maintained as a steady state. Although a larger fraction of output is used for consumption, the total level of output would be so much lower that this is actually a smaller amount of consumption.

A saving rate higher than 0.5 would lead to more saving and investment, so that a larger capital stock can be maintained. But because capital has a diminishing marginal product, the extra level of output is too small to make up for the fact that a smaller fraction of this output is used for consumption.

(10/19/09)