Econ 102
Summer 2014
Quiz #3

Name _ANNOTATE KEY_

Please write all answers neatly and legibly.

1. (1 point) Maurice purchased 100 shares of IBM stock in 2014 with each share costing $120. He used the services of Lola, a stockbroker, to make this transaction. Lola collected 2% of the value of this transaction as her payment for this work. Jody, also in 2014, purchased an old beat up desk at a yard sale for $25 and then paid Dr. Furniture, a furniture repair shop, $200 to fully restore the desk. Given these transactions calculate the effect on GDP for 2014. Assume that Maurice, Lola, Jody, and Dr. Furniture all reside in the same economy. Explain your reasoning behind the figure you give for the impact of these transactions on GDP in 2014.

100 shares @ $120/share = $12000 ⇒ transfer of stock ownership does not count

2% of value ⇒ .02(12,000) = $240₀₀ ⇒ Commission Lola gets Counts in GDP 2014

purchase of desk does not count

$200 repair of desk is production 2014 ⇒ does count in GDP 2014

ANSWER: Total effect of transactions on 2014 GDP = $440

2. (2 points) The CPI in 2014 is 50% smaller than the CPI in 2013 in Bulavia. If Maria earns $40,000 in 2013, what must her nominal income be in 2014 in order for her purchasing power in 2014 to be equivalent to her purchasing power in 2013? Show how you found your answer for full credit.

Year	CPI	nom income	real income
2013	100	$40,000	$40,000
2014	50	x	$40,000

$$real\ income = \left[\frac{nom\ income}{inflation\ index}\right](scale\ factor)$$

I have arbitrarily chosen CPI #'s that fit the provided data ⇒ by choosing BY as 2013 (i.e. CPI for 2013 is 100) then that means nominal income 2013 = real income 2013. Saves me some work ☺

$$40,000 = \left[\frac{x}{50}\right](100)$$

$$40,000 = 2x$$

Answer: x = nominal income 2014 = $20,000

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3. Novia has a population of 20,000 people who are 16 years old or older. 4,000 of these people are not employed and are currently available for work, looking for jobs, and submitting job applications. Another 4,000 people in Novia are currently not employed but are also not looking for work: 2,000 of these individuals are full-time students, 1,000 are parents at home with small children; and 1,000 are retired individuals who do not plan to work. The rest of this population that is at least 16 years old is currently working: 50% of these individuals are working part-time jobs and a fourth of the individuals with part-time jobs are actively seeking full-time jobs.

a. (1 point) Given this information, what is the number of employed people in Novia? Show how you found your answer.

Employed = 12,000   see work area below

b. (1 point) Given this information, what is the labor force equal to in Novia? Explain the number you provide.

Labor Force = Unemployed + Employed
= 4,000 + 12,000 = 16,000

c. (1 point) Given this information, what is the unemployment rate in Novia? Show how you found your answer for full credit.

$$\text{Unemployment rate} = \frac{U}{U+E}(100\%) = \left[\frac{4000}{4000+12,000}\right](100\%)$$
$$= \frac{4000}{16000}(100\%) = 25\%$$

d. (1 point) Suppose that instead of 2,000 full-time students, Novia has 1,000 full-time students and 1,000 discouraged workers. Everything else stays the same in the data you have been given. If Novia decides to view discouraged workers as unemployed workers, what will the new unemployment rate equal (round to the nearest whole percentage)? Show how you found your work.

$$\text{Unemployment rate}' = \left[\frac{U + \text{discouraged workers}}{U + \text{discouraged workers} + E}\right](100\%)$$
$$= \left[\frac{4000+1000}{4000+1000+12000}\right](100\%) = \left(\frac{5000}{17000}\right)(100\%)$$

Work area:

20,000 ≥ 16 years old
4000 Unemployed ⟹ U
───────
16000
-4000 not looking for work ⟵ 2000 full-time students
───────   1000 parent at home w/ small children
12000 employed ⟹ E   1000 retired
  ↳ 6000 part-time workers (¼ of these want full-time ⟹ 1500)
    6000 full-time workers

⟹ 4000 ⟵ 1000 full-time students
         1000 discouraged workers
   1000 parents at home w/ small children
         1000 retired

$$\text{unemployment rate}' = \frac{5}{17}(100\%) = 29\%$$

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4. Consider a country with an aggregate production function which exhibits diminishing marginal returns to both labor and capital. If the amount of capital increases in this economy holding constant the amount of labor and the amount of technology, what do you know about each of the following? Where requested draw a well labeled graph to illustrate the idea!

a. (1 point) The level of real GDP or output in this economy will __*increase*__. The figure below illustrates this idea:
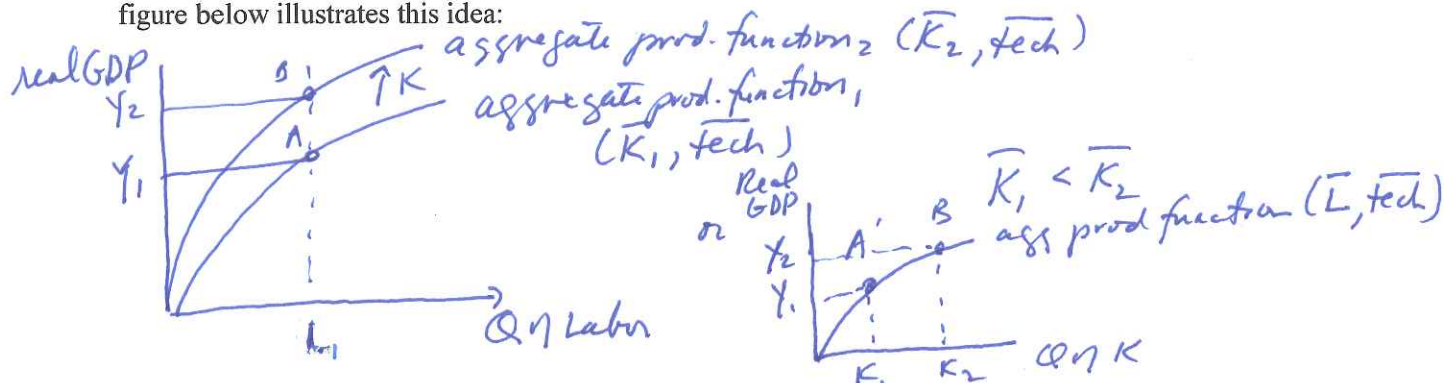
b. (1 point) Labor productivity will __*increase*__. The figure below illustrates this idea:
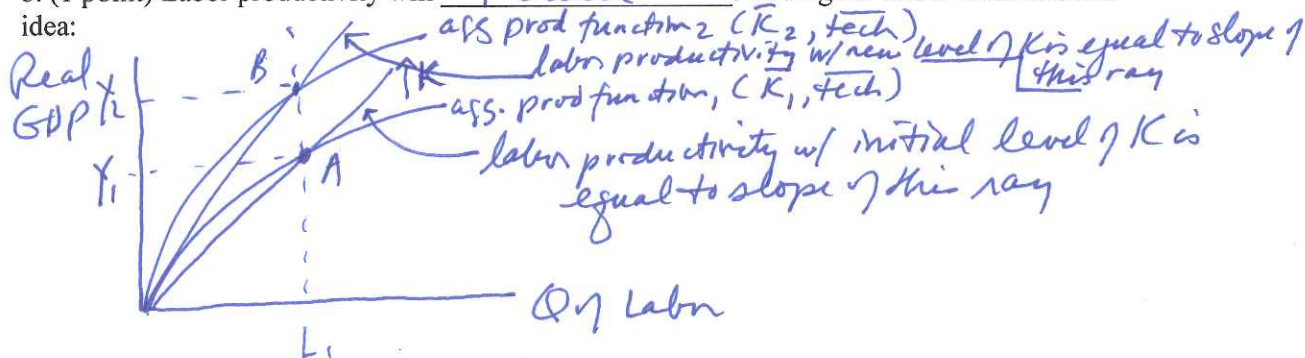
c. (1 point) Capital productivity will __*decrease*__. The figure below illustrates this idea: