

Answer Key

Testname: E322_TEST01_SPRING_2009

- 1) A
- 2) A
- 3) C
- 4) B
- 5) B
- 6) A
- 7) D
- 8) C
- 9) A
- 10) B
- 11) C
- 12) B
- 13) C
- 14) A
- 15) D
- 16) D
- 17) B
- 18) B
- 19) D
- 20) D
- 21) B
- 22) D
- 23) D
- 24) C
- 25) D

Problems and Analytical Questions

Show all of your work on all problems and analytical questions.

Question 1

Suppose that you purchase a government bond for \$400. One year later, you receive principal and interest totaling \$436. During the year, the consumer price index rose from 150 to 162.

(a) Calculate the nominal rate of interest paid by this bond.

$$i = \frac{36}{400} = .09 = \boxed{9\%}$$

(b) Calculate the real rate of interest paid by this bond.

$$\begin{aligned} \text{Inflation} = \pi &= \frac{\Delta P}{P} = \frac{162 - 150}{150} = \frac{12}{150} = .08 \\ &= 8\% \end{aligned}$$

$$r = i - \pi = 9\% - 8\% = \boxed{1\%}$$

Question 2

Suppose that the marginal product of labor is:

$$MPN = 200 - 0.5N$$

The aggregate quantity of labor supplied is:

$$N = 300 + 8w$$

In these equations, N refers to the number of workers employed and w is the real wage rate.

(a) What is the equilibrium real wage?

$$\begin{aligned} \text{Profit maximization} &\Rightarrow w = MPN \\ &w = 200 - .5N \\ N = 300 + 8w &\Rightarrow w = 200 - .5(300 + 8w) \\ &w = 200 - 150 - 4w \\ &5w = 50 \\ &w = 10 \end{aligned}$$

(b) What is the equilibrium level of the number of workers employed?

$$N = 300 + 8w$$

$$w = 10$$

$$N = 300 + 8(10)$$

$$N = 380$$

Question 3

An economy has a full employment level of output, Y , equal to 5000. Government purchases, G , are equal to 1000.

Desired consumption is given by:

$$C^d = 3000 - 2000r + 0.10Y$$

Desired investment is given by:

$$I^d = 1000 - 4000r$$

In the equations above, Y is real output and r is the expected real rate of interest.

(a) What is the equilibrium level of the expected real rate of interest?

$$\begin{aligned} Y &= C^d + I^d + G \\ Y &= 3000 - 2000r + .1Y + 1000 - 4000r + 1000 \\ 5000 &= 5000 - 6000r + .1(5000) \\ 6000r &= 500 \\ r &= \frac{500}{6000} = .0833 \end{aligned}$$

(b) What is the equilibrium level of desired consumption?

$$\begin{aligned} C^d &= 3000 - 2000\left(\frac{5}{60}\right) + .1(5000) \\ C^d &= 3000 - 166.67 + 500 \\ C^d &= 3333.33 \end{aligned}$$