# Exam 2

ECON 380
Spring 2017
UNC Chapel Hill

Name: _____

ONYEN: _____

Honor Code Signature: _____

---

<u>Directions:</u>

- For multiple choice questions, clearly circle the answer choice which best answers the question.

- For short answer questions, show all of your work and justify your answers where needed.

- Round answers to the nearest hundredth.

- Points available: 50

- Write legibly, write legibly, write legibly!

- Good luck! ☺

---

## Multiple Choice [2 pts each]

Suppose the supply and demand for low-skilled workers in Atlanta is given by

$$E_D = 15 - \frac{1}{2}w$$
$$E_S = 2w - 10$$

where $E$ represents the number of workers (in millions) and $w$ is the hourly wage rate. Assume the labor market in Atlanta is perfectly competitive.

Use this information to answer questions 1-3:

1. What is the total surplus in the labor market at the competitive equilibrium?
    - (a) $115 million
    - (b) $125 million
    - (c) $175 million
    - (d) $250 million
    - (e) None of the above

2. The government of Atlanta decides to impose a minimum wage. As a result of this law, the number of employed workers is now 8 million and there are 10 million unemployed workers. What is the hourly minimum wage imposed by the city?
    - (a) $14
    - (b) $12
    - (c) $8
    - (d) $15
    - (e) None of the above

3. What is the deadweight loss associated with this minimum wage?
    - (a) $16 million
    - (b) $10 million
    - (c) $20 million
    - (d) $8 million
    - (e) None of the above

4. Which of the following correctly describes the relationship between the employment levels in perfectly competitive (PC) labor markets, a labor market with a perfectly discriminating (PD) monopsonist, and a labor market with a non-discriminating (ND) monopsonist?
    - (a) PC employment > PD monopsonist employment > ND monopsonist employment
    - (b) PC employment > PD monopsonist employment = ND monopsonist employment
    - (c) PC employment = PD monopsonist employment > ND monopsonist employment
    - (d) PC employment = PD monopsonist employment = ND monopsonist employment

5. Campbell & Ahmed (2012) distinguish between "traditional" and "modern" labor markets. Which of the following statements does NOT describe a traditional economy typically observed in a low-income nation? A traditional economy is

   (a) more likely to have greater earnings instability.

   (b) more likely to have access to credit.

   (c) more likely to be more informal.

   (d) more likely to be deficient in the quality of jobs.

6. Arias & Khamis (2008) analyze participation and earnings performances in several sectors in Argentina in order to test whether the labor market is segmented due to "exclusion" or comparative advantage considerations. Among which workers did the authors find evidence for the comparative advantage story?

   (a) Workers engaged in self-employment.

   (b) Workers engaged in home production.

   (c) Workers engaged in informal work.

   (d) None of the above. The authors did not find evidence for the comparative advantage story.

7. Suppose Kandi lives for three periods, t = 1, 2, 3. In period 1, she can either enter directly enter to labor force or she can go to college. If she enters the labor force in period 1, she will earn $45,000, $90,000, and $80,000 in periods 1, 2, and 3, respectively. Instead, if she goes to college she will have to pay $50,000 in tuition in period 1, but then will earn $140,000 in both of the following periods.

   Kandi would be indifferent between the two choices if her discount rate was ~10%. Given this information, which of the following statements is TRUE?

   (a) Kandi will choose to go to college if her discount rate is 15%.

   (b) Kandi will choose to directly enter the labor force if her discount rate is 5%.

   (c) Kandi will choose to directly enter the labor force if her discount rate is 15%.

   (d) Kandi will choose to go to college regardless of her discount rate.

   (e) Kandi will choose to directly enter the labor force regardless of her discount rate.

8. Suppose we observe the wage-schooling outcomes of Kim and Lisa. Kim went to school for 12 years, while Lisa went to school for 15 years. Holding all else constant, how many of the following statements would lead to the different schooling choices made by the two individuals?

   - Kim has a higher discount rate than Lisa

   - Lisa's actual marginal rate of return per year of schooling is greater than Kim's

   - Lisa's perceived marginal rate of return per year of schooling is greater than Kim's

   (a) 0

   (b) 1

   (c) 2

   (d) 3

9. Phaedra's wage-schooling locus is presented in the chart below.

Table 1: Phaedra's Wage-Schooling Locus

| Years of Schooling | Earnings |
|---|---|
| 11 | $36,000 |
| 12 | $40,000 |
| 13 | $43,500 |
| 14 | $46,000 |
| 15 | $48,000 |

What is Phaedra's optimal level of schooling if her discount rate is 5%?

(a) 11 years

(b) 15 years

(c) 12 years

(d) 14 years

(e) None of the above

10. Suppose the market is populated by two types of workers. NeNes have an inherently low productivity level and make up 70% of the population. A NeNe produces $1,000,000 for a firm over their lifetime. Cynthias, on the other hand, have an inherently high productivity level and make up 30% of the population and produce $1,200,000 for a firm over their lifetime. Employers cannot observe a worker's type at the time of hiring.

Firms follow the rule of thumb that workers who obtain at least $\bar{y}$ years of college are assumed to be Cynthias and are paid a lifetime salary of $1,200,000. Workers with less than $\bar{y}$ years of education are assumed to be NeNes and are paid $1,000,000. Cynthias have a cost of $30,000 for each year of college, while NeNes have a per year cost of $50,000. Which of the following thresholds will create an equilibrium such that only Cynthias obtain the threshold education level?

(a) $\bar{y} = 7$ years

(b) $\bar{y} = 3$ years

(c) $\bar{y} = 9$ years

(d) $\bar{y} = 5$ years

(e) None of the above

**Short Answer**

1. Suppose there are two geographically isolated regions, Midtown and Buckhead. Assume the labor supply curves are perfectly inelastic in both regions and workers are perfect substitutes.

   (a) Currently, the wage rate in Midtown is greater than the wage rate in Buckhead ($w_M > w_B$). **[2 pts]** Draw the labor markets for both regions in the space below.

   (b) Describe how the free entry/exit of workers across Midtown and Buckhead will affect the **[4 pts]** labor market in both regions.

   (c) Draw the long-run equilibrium in both labor markets in your plot above. Make sure to **[3 pts]** explicitly show any curve shifts and any differences in the wage rates between the regions.

2. Porsha's Popcorn is the only employer hiring labor in the town of Buckhead. As a result of her market power, Porsha faces the following labor market structure:

$$E_S = 10w - 50$$

$$MC_E = .2E + 5$$

$$VMP_E = 60 - E_D$$

where $MC_E$ is her marginal cost of hiring workers and $E_S$ and $VMP_E$ are the labor supply and demand curves, respectively.

The labor market in Buckhead is shown in Figure 1.
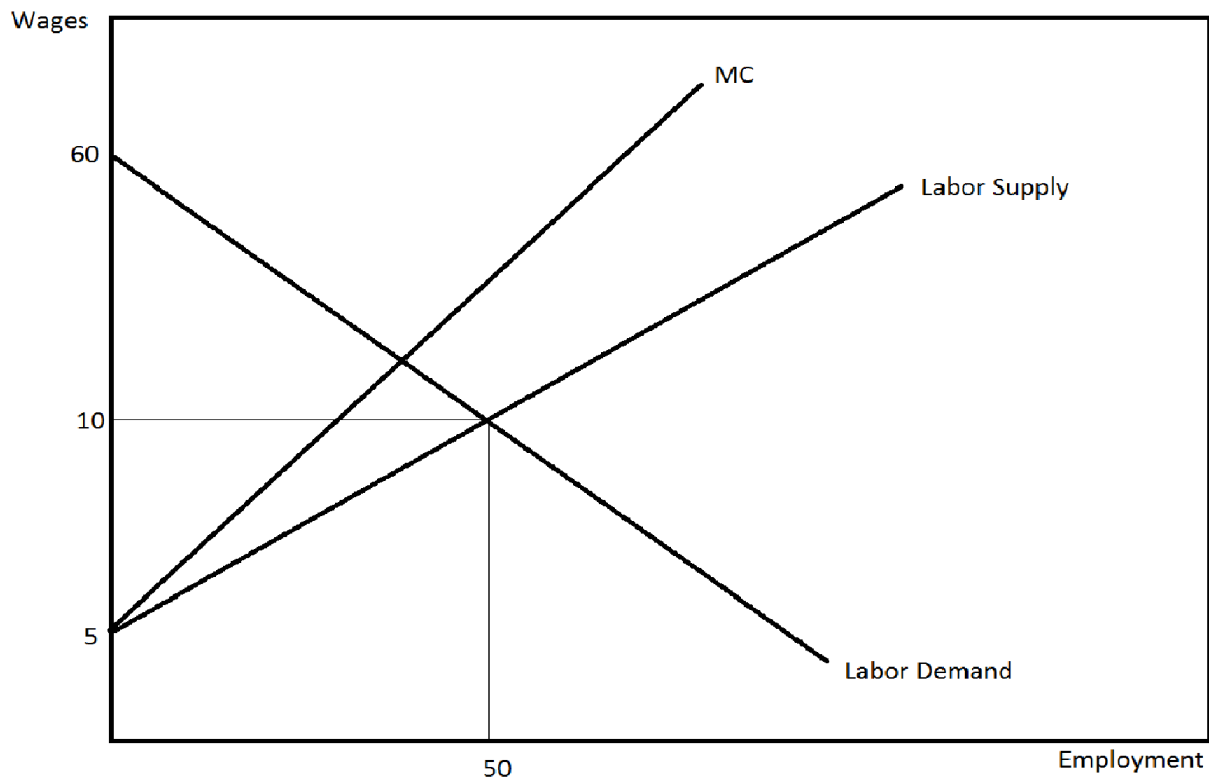


Figure 1: Buckhead's Labor Market

(a) What type of monopsonist is Porsha's Popcorn? Be specific and briefly explain your reasoning. **[2 pts]**

(b) If the labor market in Buckhead is unregulated, what is Porsha's optimal employment level **[4 pts]** and wage rate? Note: Round to two decimal places. Label these values in Figure 1. Note: You should label the points on the graph even if you can't get the actual values.

(c) In Figure 1 above, label each of the following: Firm surplus, worker surplus, and any **[3 pts]** deadweight loss resulting in an unregulated market. You don't have to compute these values.

(d) Now, suppose that the town of Buckhead wishes to impose a minimum wage $\bar{w}$ in order **[3 pts]** to raise total surplus. What are the bounds on $\bar{w}$ so that the minimum wage increases efficiency (e.g., $5 < \bar{w} < \$8$)? Label these bounds in Figure 1. Note: You should label the bounds on the graph even if you can't get the actual values.

3. Table 2 shows the marginal rate of return per year of schooling for Shereé and Shamea. At their optimal schooling choice, Shereé earns \$22,000 and Shamea earns \$27,500.

Table 2: Shereé and Shamea's MRRs

| Years of Schooling | Shereé's MRR | Shamea's MRR |
|---|---|---|
| 10 | 8.0% | 12% |
| 11 | 7.2% | 10% |
| 12 | 6.1% | 7.8% |
| 13 | 4.8% | 5.3% |
| 14 | 3.0% | 3.5% |

(a) Shereé and Shamea have the same discount rate, $r = 7\%$. What is the optimal schooling **[2 pts]** level for each individual?

(b) Suppose we estimate the marginal rate of return by comparing Shereé's wage/schooling   **[4 pts]**
    outcome to Shamea's wage/schooling outcome. What is the estimated MRR?

(c) Briefly explain why our estimated MRR is or is not biased. If the estimate is biased, state   **[3 pts]**
    which direction it is biased.

**Scratch Paper**

**Scratch Paper**