

## MIDTERM 2

**EXAM ENDS 10:10**

Closed book exam. No calculators, cell phones, or other electronic aids allowed.

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_

Your Student ID Number: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Exam Version #1

Please check your TA and the section number you were assigned to:

- |                          |                |     |     |                          |             |     |     |
|--------------------------|----------------|-----|-----|--------------------------|-------------|-----|-----|
| <input type="checkbox"/> | #01 Dias Vidal | M   | 4-5 | <input type="checkbox"/> | #07 Lee     | Th  | 5-6 |
| <input type="checkbox"/> | #02 Dias Vidal | M   | 5-6 | <input type="checkbox"/> | #08 Lee     | Th  | 6-7 |
| <input type="checkbox"/> | #03 Dias Vidal | W   | 5-6 | <input type="checkbox"/> | #09 Swanson | Tue | 4-5 |
| <input type="checkbox"/> | #04 Dias Vidal | W   | 4-5 | <input type="checkbox"/> | #10 Swanson | Tue | 5-6 |
| <input type="checkbox"/> | #05 Lee        | Tue | 6-7 | <input type="checkbox"/> | #11 Swanson | Th  | 4-5 |
| <input type="checkbox"/> | #06 Lee        | Tue | 5-6 | <input type="checkbox"/> | #12 Swanson | Th  | 5-6 |

**Instructions:** Answer the questions on your Scantron. Write on the Scantron your name (last name first), student ID number, section number, and exam version.

A new software application is produced, for which US demand is described by  $P = 40 - (Q/2)$ , where P is measured in \$, and Q is measured in millions.

1. What is the profit maximizing price for the software, assuming the cost of distributing another unit of the product is 0?

A	B	C	D	E
\$0	<b>\$20</b>	\$40	\$60	\$80

2. What is demand elasticity at the profit maximizing price?

A	B	C	D	E
-2	1	0	-0.5	<b>-1</b>

3. What is the efficient price of the software (in \$) assuming the cost of distributing another unit of the product is 0?

A	B	C	D	E
\$40	\$60	\$80	<b>\$0</b>	\$20

4. What deadweight loss does the profit maximizing pricing create?

A	B	C	D	E
\$0	\$200m	<b>\$400m</b>	\$800m	\$1600m

5. Suppose the developer spent \$400m to produce the software. For what lump sum would the software owner be willing to sell the copyright on the software to the government, to be then made available for free?

A	B	C	D	E
\$6400m	\$400m	\$1600m	\$3200m	<b>\$800m</b>

6. Suppose the producer was able to perfectly price discriminate. What would be their revenue then?

A	B	C	D	E
\$400m	\$800m	<b>\$1600m</b>	\$3200m	\$6400m

7. Suppose the producer of the software actually spent \$2 billion to develop the software. They can only charge one price. What now is the minimum price the software producer would accept to buy out the copyright on the software?

A	B	C	D	E
\$400m	<b>\$800m</b>	\$1600m	\$2000m	\$3200m

8. Assuming the development cost was \$2 billion was it socially efficient to produce the software in the first place?

A	B	C	D	E
<b>NO</b>	YES	Cannot tell	YES – but only if the government buys the rights	YES – but only if the software developer can perfectly price discriminate

9. Suppose the cost of delivering the software to the customer is \$20 per unit. What is the profit maximizing price now?

A	B	C	D	E
\$10	<b>\$30</b>	\$40	\$50	\$60

10. What is the elasticity of demand at the price in question 9?

A	B	C	D	E
2	0	-1	-2	<b>-3</b>

Suppose that the 9:15 am train from Calcutta to Varanasi has a capacity of 1,000 people. The ticket price is 10 Rupees, but that at this price there is excess demand for seats. The price at which the excess demand would be removed is 80 Rupees. To get the cheap tickets people have to line up, or book seats far in advance.

11. If all of the excess demand is eliminated through rent seeking, what is the total efficiency loss from rent seeking per train journey in Rupees?

A	B	C	D	E
0	10,000	50,000	60,000	70,000

12. Suppose the tickets are re-sellable. Travel agents hire poor people to wait in line and buy all the cheap tickets, then sell them to customers for 80 Rupees. What now is the total efficiency loss from rent seeking per train journey in Rupees?

A	B	C	D	E
70,000	10,000	50,000	60,000	0

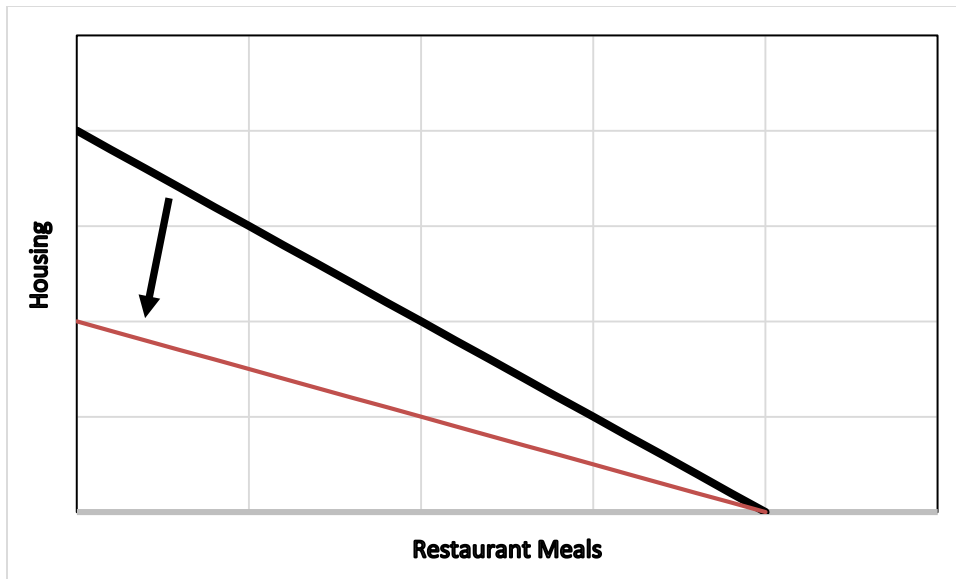
13. Observing the excess demand the ticket sellers come up with a scheme of charging bribes of 70 Rupees to all ticket purchasers. After this scheme is implemented what is the total rent seeking efficiency loss per train journey in Rupees?

A	B	C	D	E
70,000	60,000	50,000	0	10,000

14. A firm has sales of \$100 m. It has costs of \$40 m. for labor and materials. It has a capital stock employed in production of \$200 m. If the cost of borrowing capital for industry is 10% per year, what is the profit rate of the firm in economic terms?

A	B	C	D	E
0%	20%	10%	15%	25%

The figure below shows the budget constraint for someone between square feet of housing and restaurant meals (solid line). The budget constraint changes in the way shown.



15. What has caused the change shown in the budget constraint?

- A. An increase in income
- B. An increase in the price of housing**
- C. A decline in the price of housing
- D. An increase in the price of restaurant meals
- E. A decline in the price of restaurant meals

16. After the change to the budget constraint in the figure what will happen to consumption of housing and restaurant meals, assuming both are normal goods?

- A. Consumption of both goods will decrease
- B. Housing consumption decreases, but meals increase
- C. Meal consumption increases, but housing consumption declines
- D. Housing consumption decreases, but meals might decline or increase**
- E. Meal consumption decreases, but housing consumption might increase or decline

## LONG ANSWER (8 pts)

UC-Davis offers a subsidy to faculty and administrators for housing. The university maintains a stock of 50 houses in East Village. They are worth \$600,000 on the open market, and their market rental would be \$40,000 a year. The houses are sold to faculty for half their market value (\$300,000). Since property taxes are based on the sale price of housing the buyers also pay reduced property taxes. Thus the occupancy cost per year for them is only \$10,000 a year.

But to be chosen for a house a faculty member must put their name on a waiting list from which names are drawn randomly, and must not own a house when their name is drawn. The houses thus sold have to be sold back to the university at the same price (with an allowance for general price rises). They cannot be rented to anyone else except on a short term basis.

Explain why this type of housing subsidy is inefficient. Estimate the likely annual cost to society of the UC Davis scheme, explaining and justifying any assumptions.

For full credit:

Explain the various types of behaviors that are induced that have costs to faculty (delaying home purchases while waiting for a winning lottery ticket, accepting a less than optimal home, remaining in the home even when family circumstances change)

Estimate the possible range of these losses (a diagram is helpful).

Rent Seeking Loss is at maximum  $(40,000 - 10,000) \times 50 = \$1.5 \text{ m per year}$ .

Even though the full rent seeking loss will not generally occur, we will give full credit for this maximum as an estimate (if adequately explained).

