

Final

A. Short problems

You should allocate eighty minutes of exam time (about ten minutes per problem) to this section.

- (1) Depict graphically (i.e., bid rent curves) the effects of the following changes on city radius and on the division of city land between the central business district (CBD) and the suburban residential district (SRD). Just consider the first-round effect rather than any additional effects (i.e., a partial equilibrium rather than general equilibrium analysis):
 - a) Conversion of highway lanes to diamond lanes increases congestion.
 - b) Companies add night shifts and let workers choose whether to work at night or day.
 - c) The city stops running a bus system, so commuters have to switch either to using cars or to walking to and from work.
- (2) Suppose a city decides to increase its proportion of open space by zoning an increased amount of its land for open space. Explain the expected effects on the city's:
 - a) wage rate
 - b) bid-rent curves
 - c) population density
- (3) Assume charter schools are perceived to be of higher quality than the average neighborhood school, and assume charter schools admit students regardless of their location in the city.
 - a) What would be the likely effect of charter schools on income segregation in the city, and why?
 - b) Now argue the opposite case to whatever you stated in your answer to (a) and explain why this alternative outcome could happen instead.
- (4) Permitville reduces the number of house building permits to half of the current number.
 - a) Use a graph to show how this affects the market for new housing.
 - b) Who benefits if Permitville uses a lottery system to give away the permits?
 - c) Who benefits if Permitville uses a bidding system to sell the permits?

- (5) Suppose a building subsidy program is so successful in stimulating building of new housing that the price of housing drops from \$1 to \$0.75 per unit. Show how a household with a \$1000 monthly income is affected by this change.
- a) Draw a graph showing the initial budget line and the household's initial indifference curve and chosen point (start them at 400 units of housing)
 - b) Add the new budget line on this graph after the price of housing drops.
 - c) How do you know that the household is better off now?
 - d) Assuming that housing is a normal good, will the household increase or decrease their consumption of housing? Explain.
- (6) Pick one of the following three ideas suggested by members of the class and discuss its feasibility, both in terms of whether it would improve a particular city in which it is implemented, and what the drawbacks might be of the idea.
- a) Amphibious houses.
 - b) Vertical farming.
 - c) Underground bicycle parking.
- (7) Bikeopolis is trying to reduce its congestion problem on the main road in the city.
- a) Draw a graph showing the private-trip-cost curve and the social-trip-cost curve and show a case where the current level of demand generates a congestion cost.
 - b) Suppose the city turns one of the two lanes on the road into a bike lane, where only bicycles and motor scooters can use the lane. Depict graphically a situation in which the bike lane reduces the congestion cost but does not completely solve the situation.
 - c) The city decides also to impose a congestion tax. Show graphically how much the tax should be, given that the bike lane is already in existence.
- (8) Chopperville is evaluating the merits of using helicopters to clear up highway accidents. Suppose that an accident simply stops traffic from the time the accident occurs to the time the disabled vehicles are removed from the highway. During rush hours, the typical accident stops traffic for 8,000 cars. Under the current tow-truck system, the typical rush-hour accident stops traffic for 15 minutes. Under a helicopter system, the typical rush-hour accident would stop traffic for 10 minutes. Suppose cost of the tow-truck system is \$500 per accident and the cost of the helicopter system is \$2500 per accident.
- a) What additional piece of information do you need in order to decide which is better?
 - b) At what value for the missing piece of information would you be indifferent between the two systems?

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B. Essay questions

You should allocate eighty minutes of exam time to this section, twenty minutes to answering each question. Your grade on these answers will depend on the coherence and completeness of the answer and on your demonstrating knowledge of the material covered in this course. Use equations, graphs, or diagrams to illustrate your points when helpful.

- (1) Give an example of a good or service that is currently generally provided by local government, explain the rationale for why it is provided by the government rather than by the private sector, and explain the rationale for why it is provided by local government rather than at the regional, state, or federal level. If you disagree with one or both of these rationales, explain why and say what should happen instead.
- (2) How can one determine the optimum amount of crime?
- (3) Explain what fundamental concepts from the urban economics course are unique to the urban economics way of doing economic theory (i.e., what additional concepts you learned in this course relative to Econ 110/301). Give at least three examples.
- (4) How do you think the economist's view of urban planning and how to solve urban-related problems would differ from the point of view of noneconomists (such as urban planners, and local government officials)? Give at least three examples.