

Economics 631
Principles of Transportation
First Exam

Key

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1. Which of the following concerning the impact of transportation on the economy is correct?
 - a. efficient transportation fosters larger market areas but has no effect on regional price stability or interregional competition between sellers
 - b. since efficient transportation causes interregional competition between sellers to increase, as a result the supply of products in the local market decreases causing local prices of goods to increase
 - ☒ c. the benefits of comparative advantage and interregional trade can be achieved if transport cost between regions is less than the difference in prices between regions
 - d. the benefits of comparative advantage and interregional trade can only be achieved if transport cost between regions is greater than the regional cost differential of goods
 - e. efficient transportation fosters economies of scale but has no effect on market areas or urban form

2. Which of the following concerning intraurban transportation costs and urban form is correct?
 - a. the cities of the south and west have relatively high population densities at the center of the city since intraurban transport costs were high when these cities experienced strong growth
 - b. the cities of the northeast have relatively low population densities at the center of the city since intraurban transport costs were low when these cities experienced strong growth
 - c. urban population density is unaffected by intraurban transport costs
 - ☒ d. a city with low intraurban transport costs is likely to be relatively spreadout, i.e. population density declines slowly as distance from the center of the city increases
 - e. a city with high intraurban transport costs is likely to be spread out, i.e. population density declines slowly as distance from the center of the city increases

3. Which of the following most accurately describes the relationship of transportation to economic development?
- ☒ a. transportation investment reduces business firm costs, and allows business firms to reduce prices, increase sales, and increase employment
 - b. transportation investment reduces business firm costs and allows them to raise prices, increase profits, and increase employment
 - c. a decrease in transport costs for freight shippers will have no positive effect on economic development since transport costs are small compared to other business costs
 - d. transportation investment allows business firms to increase their market areas, raise prices, reduce labor cost, and increase profits
 - e. transportation investment allows business firms to sell the same output in a smaller market area, resulting in a further reduction in transport cost and total cost
4. Which of the following concerning market shares in the freight transportation market is correct?
- a. when the market is measured by tonnage, railroads have the largest market share
 - ☒ b. when the market is measured by ton-miles, railroads have the largest market share
 - c. between 1990 and 2009, the oil pipeline share significantly increased when the market is measured by ton-miles
 - d. when the market is measured by ton-miles the share of inland waterway carriers has increased
 - e. when the market is measured by ton-miles, motor carriers have the largest market share
5. Which of the following is correct?
- a. as the value/weight ratio increases, the transport cost/total cost ratio decreases, and transport demand becomes more price elastic causing relatively higher transport prices
 - b. railroad price per ton is greater for coal than steel since coal has a higher value/weight ratio than steel
 - c. railroad price per ton is greater for auto parts than for assembled autos because auto parts have a higher value/weight ratio than autos
 - d. as the value/weight ratio increases, the transport cost/total cost ratio increases, and transport demand becomes more price inelastic causing relatively higher transport prices
 - ☒ e. as the value/weight ratio increases, the transport cost/total cost ratio declines, and transport demand becomes more price inelastic causing relatively high transport prices

6. Which of the following regarding transportation competition is correct?
- a. competition between the Norfolk Southern Railroad and the CSX Railroad is an example of intermodal competition
 - b. competition between Schneider Trucking Company and BNSF Railroad is an example of intramodal competition
 - c. competition between Southwest and United Airlines is an example of intermodal competition
 - ☒ d. competition between Kansas City Southern Railroad and Union Pacific Railroad is an example of intramodal competition
 - e. competition between Greyhound and Amtrak is an example of intramodal competition
7. A transportation carrier can create a corridor demand for transportation between a given origin and destination if which of the following occurs?
- a. the transportation cost is less than the sum of the production costs of the origin and destination
 - ☒ b. the transportation cost is less than or equal to the production costs of the destination minus the production cost at the origin
 - c. the transportation cost is less than the production cost at the destination
 - d. the transportation cost is greater than the difference of the production costs of the destination and the origin
 - e. the transportation cost is less than the production cost at the origin
8. As the number of transport substitutes available to the buyer of transportation service increases:
- ☒ a. the more price elastic the demand for transport
 - b. the more service inelastic the demand for transport
 - c. the more elastic the supply of transport
 - d. the price elasticity of demand for transport is unaffected by the number of substitutes available to the buyer
 - e. the more likely the price elasticity coefficient will be less than 1.0
9. An increase in transportation costs of raw material inputs will increase the total costs of freight shippers. Which of the following will be the effect on freight shippers' product prices and output levels?
- a. the shippers' supply curve will shift to the right causing a decrease in price and output
 - b. the shippers' demand curve will shift to the right causing an increase in price and output
 - ☒ c. the shippers' supply curve will shift to the left causing an increase in price and a decrease in output
 - d. the shippers' supply curve will shift to the right causing a decrease in price and an increase in output
 - e. the shippers' demand curve will shift to the left causing a decrease in price and output

10. If freight transportation prices increase and the total revenue of freight transportation firms decreases, then the demand for freight transport is:
- a. service inelastic
 - b. price inelastic
 - c. unit price elastic
 - d. service elastic
 - ☒ e. price elastic
11. Firms A and B are selling a homogeneous product and are located 600 miles apart. The transportation price per unit per mile of output is higher for Firm B than for Firm A. The production cost per unit of output is lower for Firm A than for Firm B. Which of the following concerning the market area boundary between Firms A and B is correct?
- ☒ a. the market area boundary will be closer to Firm B than Firm A
 - b. based on the given information, it is impossible to determine the location of the market area boundary
 - c. there will be no distinct market area boundary
 - d. the market area boundary will be closer to Firm A than Firm B
 - e. the market area boundary will be equidistant from Firms A and B
12. Assume that if a transportation company charges a price of \$0.50 per ton-mile then its ton miles are 15,000. If the firm raises its prices to \$0.60 per ton-mile its ton-miles fall to 11,000. Which of the following is the price elasticity of demand over this range of the firm's demand curve? Use the mid-point formula.
- a. 1.00
 - b. 0.43
 - c. 0.68
 - d. 0.79
 - ☒ e. 1.69
13. Which of the following concerning freight service characteristics is correct?
- a. the only freight service characteristic that directly affects transport cost is transit time
 - ☒ b. the only freight service characteristic that is not directly related to inventory cost and stockout cost is capability
 - c. freight service characteristics have no impact on freight buyers' inventory costs
 - d. the only impact of transit time reliability is on stockout costs
 - e. an improvement in transit time reliability will reduce stockout costs but increase inventory carrying cost

14. Concerning business and leisure passenger airline travel demand, which of the following is correct?
- a. Business travel occurs primarily on weekends while leisure travel occurs primarily on weekdays when airlines have excess capacity
 - b. Leisure travel is more sensitive to airlines' schedule (frequency of service and number of markets served) than business travel
 - c. Business travelers pay lower average airline prices than leisure travelers because business demand for travel is price inelastic
 - ☒ d. Leisure travelers pay lower average airline prices than business travelers because the vacation travelers' demand for travel is price elastic whereas business travel is price inelastic
 - e. Business travel demand is price elastic whereas leisure travel demand is price inelastic
15. In class we discussed the *Kansas City Star* article titled, "Big Flour Mills Fading From KC." Based on that discussion, which of the following is correct?
- a. The U.S. has about 1,000 flour mills located in various states
 - b. Of the dozens of flour mills that used to be in KC all but four have left in the last five years
 - c. The railroads ship one car of wheat at a time from grain elevators to flour mills
 - ☒ d. One of the reasons for the decline in flour mills in KC is the lower transport rate for wheat relative to flour that favors market location
 - e. Flour mills in general haven't gotten larger

Answer questions 16-23 by using the transportation cost model of location discussed in class. The definitions of the variable; W_s , t_s , and t_m are the same as those discussed in class. Assume one point market and one raw material source.

16. Which of the following is the correct definition of procurement cost?
- a. the fixed transport cost of shipping the required number of tons of output per ton of input from the raw material site to the firm's location
 - ☒ b. the variable transport cost of shipping the required number of tons of input per ton of output from the raw material site to the firm's location
 - c. the variable transport cost of shipping the required number of tons of input per ton of output from the raw materials site to the market
 - d. the variable transport cost of shipping the required number of tons of input per ton of output from the firm's location to the market
 - e. the fixed transport cost of shipping the required number of tons of input per ton of output from the raw material site to the firm's location

17. Which of the following is the correct specification of procurement cost per mile?
- ☒ $W_s \cdot t_s$
 - $W_s \cdot 1.0$
 - $W_s \cdot t_m$
 - $t_s \cdot 1.0$
 - $W_s \cdot t_s \cdot t_m$
18. Which of the following is the correct specification of distribution cost per mile?
- $W_s \cdot 1.0$
 - $W_s \cdot t_m$
 - $W_s \cdot t_s$
 - $t_s \cdot 1.0 \cdot t_m$
 - ☒ t_m
19. Under which of the following conditions will the firm locate at the market?
- $t_m=\$2.08, W_s=2.07, t_s=\1.21
 - $t_m=\$1.20, W_s=0.81, t_s=\1.63
 - $t_m=\$1.55, W_s=1.51, t_s=\1.07
 - ☒ $t_m=\$3.38, W_s=2.01, t_s=\1.55
 - $t_m=\$4.49, W_s=2.69, t_s=\1.87
20. Under which of the following conditions will the firm locate at the raw material site?
- $t_m=\$3.38, W_s=2.04, t_s=\1.56
 - $t_m=\$6.32, W_s=3.26, t_s=\1.87
 - ☒ $t_m=\$3.75, W_s=2.09, t_s=\1.89
 - $t_m=\$1.55, W_s=0.95, t_s=\1.45
 - $t_m=\$7.40, W_s=3.48, t_s=\2.07
21. Under which of the following conditions will the firm locate at the market?
- the production process is weight gaining ($W_s < 1$) and the transport price per ton-mile of the input (t_s) exceeds that of the output (t_m)
 - ☒ the production process is weight gaining ($W_s < 1$) and the transport price per ton-mile of the output (t_m) is greater than that of the input (t_s)
 - the production process is weight losing ($W_s > 1$) and the transport prices per ton-mile of input (t_s) and output (t_m) are identical
 - the production process is weight losing ($W_s > 1$) and the transport price per ton-mile of the input (t_s) exceeds that of the output (t_m)
 - the weight of the input and output are equal ($W_s = 1$) and the transport price per ton-mile of the input (t_s) exceeds that of the output (t_m)

22. Under which of the following conditions will the firm locate at the raw material site?
- a. the production process is weight losing ($W_s > 1$) and the transport price per ton-mile of the input (t_s) equals that of output (t_m)
 - b. the weight of input and output is identical ($W_s = 1$) and the transport price per ton-mile of the output (t_m) exceeds that of the input (t_s)
 - c. the production process is weight gaining ($W_s < 1$) and the transport price per ton-mile of input (t_s) and output (t_m) are identical
 - d. the production process is weight losing ($W_s > 1$) and the transport price per ton-mile of the output (t_m) is greater than that of the input (t_s)
 - e. the production process is weight gaining ($W_s < 1$) and the transport price per ton-miles of the output (t_m) exceeds that of the input (t_s)
23. Which of the following responses pertaining to location trends of the flour milling industry since 1965 is correct?
- a. wheat growing areas have increased their share of the flour milling market since milling is weight losing process
 - b. large population centers have increased their share of the milling market since milling is a weight gaining process and the transport prices per ton-mile of wheat and flour are the same
 - c. wheat growing areas have increased their share of the flour milling market since the transport price per ton-mile of wheat is twice that of flour
 - d. large population centers have increased their share of the market since milling is a weight gaining process
 - e. large population centers have increased their share of the flour milling market since the transport price per ton-mile of flour is twice that of wheat
24. If all the buyers of a firm's product have the same linear demand curve, the profit maximizing delivered price will increase with distance by:
- a. one-half of the total transport cost per unit of output per mile
 - b. the variable transport cost per unit of output per mile
 - c. one-half the variable transport cost per unit of output per mile
 - d. one-half of the fixed transport cost per unit of output per mile
 - e. the amount of fixed transport cost per unit of output per mile
25. Assume that a spatial monopoly decreases its plant price. Which of the following is correct?
- a. if demand is price inelastic, the firm's profit must increase
 - b. if demand is price elastic, total revenue will be unchanged
 - c. if demand is price inelastic, total revenue will increase
 - d. if demand is price elastic, total revenue will increase
 - e. if demand is price elastic, the firm's profit must decrease

26. Which of the following regarding the effect of plant price and transport price per ton-mile on spatial monopoly market areas is correct?
- a. a decrease in plant price will decrease the market area and total sales
 - b. an increase in transport price per ton-mile coupled with a increase in plant price must increase the market area and total sales
 - c. an increase in plant price coupled with a reduction in transport price per ton-mile must decrease the market area and total sales
 - ☒ d. plant price and transport price per ton-mile are inversely related to market areas and total sales
 - e. an increase in the transport price per ton-mile will increase the market area and total sales
27. Which of the following concerning a spatial monopoly is correct?
- ☒ a. if the demand for the monopolist's product is price elastic, and the monopolist reduces its plant price, the monopolist's total revenue will increase
 - b. the monopolist's marginal revenues and marginal costs have no impact on the monopolist's profit maximizing market area
 - c. if the monopoly increases its plant price (transport price constant), the monopoly's total revenue will increase if demand is price elastic
 - d. if the monopoly raises its plant price (transport price constant), the market area will be unaffected but consumers still in the market will reduce their purchases from the monopoly due to the higher delivered price
 - e. if the monopoly raises its plant price (transport price constant), the market area will decrease but the consumers that are still in the market area will not alter their quantity demanded
28. Which of the following regarding F.O.B. origin and delivered pricing is correct?
- a. delivered pricing is buyer transportation which results in discrimination against nearby buyers as well as larger market areas
 - ☒ b. a disadvantage of delivered pricing is that the firm must devote resources to managing outbound transportation
 - c. the firm can forecast total revenue more easily by using delivered pricing rather than F.O.B. pricing
 - d. delivered pricing usually results in larger producer market areas and easier total revenue forecasting than F.O.B. pricing
 - e. in F.O.B. pricing, title to the goods passes at the buyer's location

29. Which of the following regarding the impact of transportation on producer market areas is correct?

- a. firms producing a good with a high transport cost/total cost ratio are more likely to adopt industry wide uniform pricing
- b. firms that are in an industry that has adopted industry wide uniform pricing will have sharply defined market areas, i.e., no market area overlap
- ☒ c. competing firms that are producing differentiated goods will have market area overlap
- d. competing firms that are producing homogenous goods will have market area overlap
- e. if a firm has lower landed costs than its competitors it will have a smaller market area than its competitors

30. Which of the following regarding the concept of business logistics is correct?

- a. minimization of inventory costs always minimizes total business logistics costs
- b. faster, more reliable transport increases inventory costs and transport costs
- c. business firms consider minimization of logistics costs to be a more important objective than achieving a desired level of customer service
- d. business logistics costs are minimized when firms minimize transport costs and maximize customer service
- ☒ e. business logistics systems have tradeoffs among several types of business costs such as inventory and transport costs

31. Suppose that a company has a very inefficient, high cost logistics system, so the company's management hires a KSU graduate to reorganize with the objective of reducing the costs of the logistics system. Of course, the KSU graduate achieves the objective. Using the standard supply and demand model, which of the following will be the effect of the KSU graduate's work on the firm's price and sales?

- a. demand will increase and supply will decrease, causing the firm's price, sales, and profits to increase
- b. both supply and demand decrease, causing the firm's price to remain constant while sales decrease
- c. both supply and demand increase, causing the firm's price to remain constant while sales increase
- ☒ d. supply will increase, causing the firm's price to fall and sales to increase
- e. supply decreases, causing the firm's price to increase while sales decline

32. Which of the following regarding mode-carrier selection is correct?
- a. the only advantage to the shipper of using carriers with faster and reliable transit times is lower stockout cost
 - ☒ b. shippers may achieve marketing advantages (i.e., differentiated services) by using delivered pricing and hiring carriers with dependable, faster transit times
 - c. rail transport has the best accessibility performance of the five freight carrying modes
 - d. transportation cost is more important for carrier selection than mode selection
 - e. the only cost incurred by a shipper using carriers with poor safety performance is higher stockout cost
33. One of the transportation carrier selection criteria is accessibility. Which of the following statements is correct?
- a. accessibility refers to the ability of a carrier to access the transportation networks of other carriers at minimum cost
 - b. accessibility refers to the ability of a carrier to access the delivery status of customer shipments on a real time basis
 - ☒ c. accessibility is the ability of a carrier to provide all the transportation service between specific origins and destinations
 - d. accessibility is the ability of a carrier to provide the unique transport/logistics services and equipment required by the shipper
 - e. of the freight carrying modes, airlines have the best accessibility performance because they are the only mode with a national network
34. Which of the following types of freight is likely to reduce the market power of the freight service user in negotiating rates and service with transportation carriers?
- ☒ a. traffic with a low weight per cubic foot (i.e. low density)
 - b. large traffic volume
 - c. regular, predictable traffic
 - d. difficult to damage freight (durable)
 - e. traffic with a high value/weight ratio
35. Shipment consolidation is:
- a. most often used as part of bulk shipment transportation strategy
 - b. refers to limiting the number of carriers employed by the shipper
 - c. most often used as part of general transportation strategy
 - d. practiced only by shippers whose products have a high value/weight ratio
 - ☒ e. most often employed as part of small shipment transportation strategy
36. Which of the following concerning private transportation is correct?
- a. private transport exists in the trucking mode but not in the water carrier mode
 - b. private transportation is most extensive in rail transportation
 - c. the air mode is the only one that has no private transportation
 - ☒ d. oil pipelines are both private carriers and common carriers
 - e. private transportation exists in the trucking mode but not in the rail mode

37. Development of shipper-carrier partnerships and use of balanced loads are components that apply only to which of the following shipper transportation strategies.
- a. F.O.B. shipment strategy
 - ☒ b. bulk shipment strategy
 - c. small shipment strategy
 - d. general shipment strategy
 - e. delivered pricing strategy
38. Other things equal, which of the following is least likely to achieve a cost reduction using private transportation instead of for-hire carriers?
- ☒ a. firms with small shipments to widely dispersed locations
 - b. firms whose products have a high value/weight ratio
 - c. firms with a high percentage of balanced loads
 - d. firms with large volumes of traffic
 - e. firms with regular predictable shipment patterns throughout the year
39. Which of the following involving truck equipment leasing is correct?
- a. a finance lease includes financing of the truck and all the support services that go with it
 - b. in full service lease, all maintenance expenditures on the truck are always the responsibility of the firm leasing the truck (i.e. the lessee)
 - ☒ c. leasing increases the amount of capital available for the primary business of the firm
 - d. leasing increases the financial risk involved in private transportation
 - e. leasing has no affect on the amount of capital available to the firm or the financial risk of private transportation
40. Which of the following regarding economic regulation of private trucking is correct?
- a. private carriers are prohibited from operating as for-hire carriers
 - b. private truck fleets can haul freight for subsidiaries of the same parent firm that are 51 percent owned by the parent firm
 - c. private truck fleets are prohibited from transportation (as a for-hire carrier) of commodities that are exempt from federal economic regulation
 - d. to eliminate empty back hauls, private truck fleets can trip lease their equipment to other private fleets but not to motor common carriers
 - ☒ e. to eliminate empty back hauls, private truck fleets can trip lease their equipment to both motor contract carriers and motor common carriers