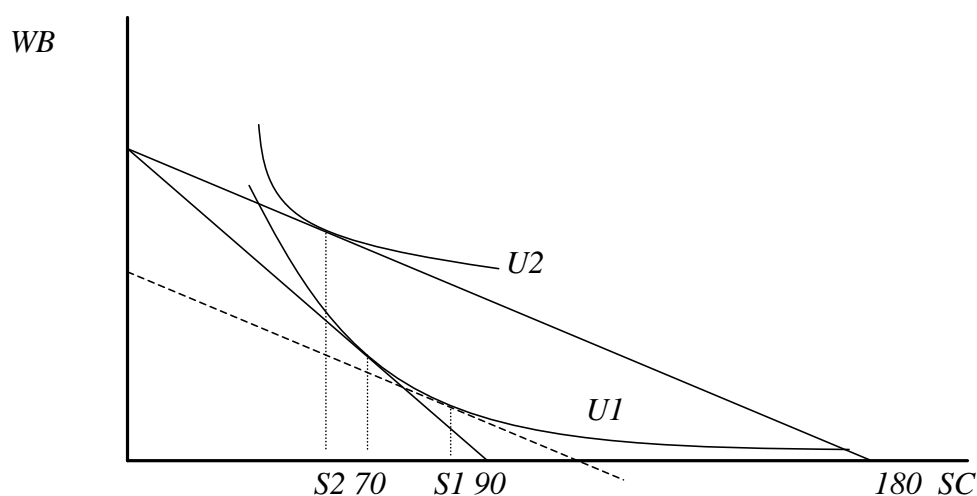


Clearly label all graphs for full credit
 and please write legibly; I cannot grade what I
 cannot read.

Number of points each question is worth in parentheses.

1. Ewok the Eskimo consumes two goods, Whale-Burgers, W, and Snow-Cones, S. The price of Whale-Burgers is \$3 and the price of a Snow-Cone is \$1. Ewok's income is \$90.

a. (6) Below, with Snow-Cones X-AXIS, draw in Ewok's budget constraint and an indifference curve that assumes he starts out consuming 70 Snow-Cones. Clearly label all axis and intercepts.



- b. (14) Now assume the price of snow-cones falls to \$.50 and Ewok's consumption of Snow-Cones FALLS. Using the graph above, describe the change in his quantity demanded in terms of the income and substitution effects. Please fully define/explain income and substitution effects in general and then describe/explain them in the context of this question. Either draw or describe Ewok's demand curve for Snow-Cones. (I have given you room on the next page if you need extra space).

When the price first falls, Ewok sees that snow-cones have become relatively cheaper than whale burgers so he decides to consume more snow cones and fewer whale burgers. If allowed to consume a bundle on his original indifference curve (U1), he would choose to consume S1 snow cones. The change from 70 to S1 is the substitution effect caused by the price change. Since SC became cheaper relative to WB (budget constraint got flatter) and because indifference curves get flatter as consumption moves to the right, we know the substitution effect must be an increase in SC consumption.

In addition, the price change makes Ewok feel richer. Relative to prices, he has more purchasing power. The change in consumption of SC from S1 to S2 reflects his response to this change. We call this change the income effect. Since the question states that Ewok buys fewer SC after the price decrease, the income effect must not only be negative, but also

must be larger than the substitution effect. Therefore, Snow Cones must be a Giffen good and demand for SC must be upward sloping.

c. (5) Explain how Ewok's demand curve would differ if I had asked you to draw his compensated demand curve? Explain.

A compensated demand curve assumes utility remains constant so only the substitution effect on consumption is accounted for. In this case, demand would be downward sloping.

2. (10) The Dallas Morning News recently reported that the Texas Utility Commission has agreed to allowing electric companies to raise electricity rates 24% this winter.

True/False/Depends: North Texans will be spending 24% more on electricity this winter. Explain your answer.

False: This would only be true if quantity of electricity demanded did not change. This would indicate a perfectly inelastic demand for electricity. Even though demand is probably inelastic, saying that there are no substitutes for electricity is inappropriate. Possible substitutes include lower thermostat settings, more candles, more insulation, putting on a sweater.

True/False/Depends: Homeowners will definitely be spending more on electricity than they would have if the rates had not changed. Explain your answer.

False: it depends on the price elasticity of demand. If demand is inelastic, then expenditure will rise even if quantity demanded falls (as long as the fall in Q_d is $< 24\%$). However, if quantity demanded falls more than 24%, demand will be elastic and total expenditure will fall.

3. Lookin' Good Hairpieces (LGH) has the following production function: $Q = 5K^2 * L^{1/2}$

In the current, short run, time frame, LGH is utilizing 3 units of capital. The price of capital is 60 and the price of labor is 10.

- a. (4) What is the short run total cost function for the firm.

$$TC = Q^2/2025 + 180$$

- b. (4) What is the short run marginal cost function for the firm.

$$MC = 20Q/2025$$

- c. (4) If they are currently using 20 units of labor, how much are they producing and what is the firm's $MRTS_{LK}$.

$$Q = 201.25$$

$$MPL = 5K^2/2L^{1/2}$$

$$MPK = 10KL^{1/2}$$

$$MRTS = MPL/MPK = .0375$$

- d. (4) Are they currently on their expansion path? If not, explain how you know.

To be on expansion path, $MRTS = PL/PK$. $MRTS = .0375$, $PL/PK = .1666$ so not on expansion path.

4. Bobs's Bongo Backyard Bar-B-Q Company sells oil-drum grills in a competitive market. His company has the following cost schedule:

		#1	#2	#3		
Q	TFC	TVC	TC	MC		MC
0	400	0	400			
1	400	150	550	150		450
2	400	270	670	120		120
3	400	375	775	105		105
4	400	465	865	90		90
5	400	565	965	100		100
6	400	685	1085	120		120
7	400	835	1235	150		150
8	400	1025	1425	190		190
9	400	1265	1665	235		235
10	400	1555	1855	290		290

- a. (5) What will be Bob's quantity supplied if the price is \$150? Please explain how you know.

MR = MC at a quantity of 7 units. At that quantity, TR = \$1050 and TC = \$1235. His loss is \$185, which is \$215 better than shutting down and paying \$400 in FC.

- b. (5) What will be Bob's quantity supplied if the price is \$100? Please explain how you know.

Now, MR = MC at a quantity of 5. TR = \$500 and TC = \$965 so his loss is \$465. This is worse than paying a FC of \$400 and he will shut down.

- c. (5) Assume again the price of grills is \$150. What will be the effect on Bob's output decision if TFC is actually \$700?

No change since FC and loss have both increased by \$300. Loss now \$485. He is still \$215 better off producing 7.

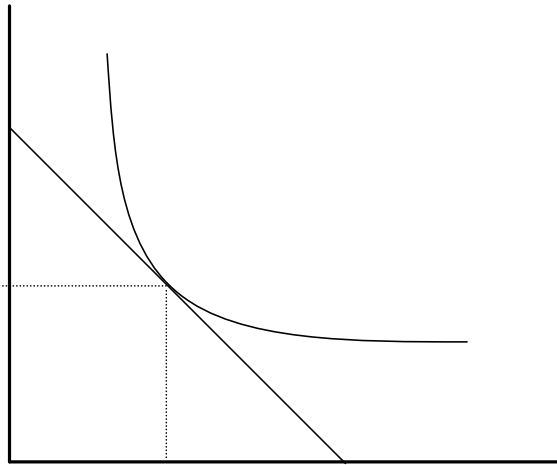
- d. (5) With the price still at \$150 and TFC back at \$400, what will be the effect if TVC is \$300 higher than in the schedule above at each level of output.

The MC only changed for the first unit so MR=MC at 7. However, the extra \$300 is avoidable by shutting down. Now, FC = \$400 and the loss from producing 7 units is \$485. He is better off shutting down.

5. Assume a firm is operating on its expansion path and producing 1000 Widgets ($P_L = 30$, $P_K = 60$ and $MRTS_{LK} = 1/2$).
- a. (4) What is the expansion path?

The expansion path is made up of the input bundles that satisfy $MRTS = PL/PK$ (minimum cost input bundles) for every level of output.

- b. (8) Assume this firm is producing where $MRTS_{LK} = P_L/P_K$. Using the axis below, demonstrate and explain the implications of this in terms of changing the amount of labor (e.g. by one worker) used to produce 1000 Widgets?



Since $MRTS = .5$ AT the point of tangency, increasing labor by one unit (increasing cost by \$30) and hiring capital to maintain output = 1000 will require reducing the amount of K used by $< .5$ units (saving the firm $< \$30$). As a result, total cost will rise.

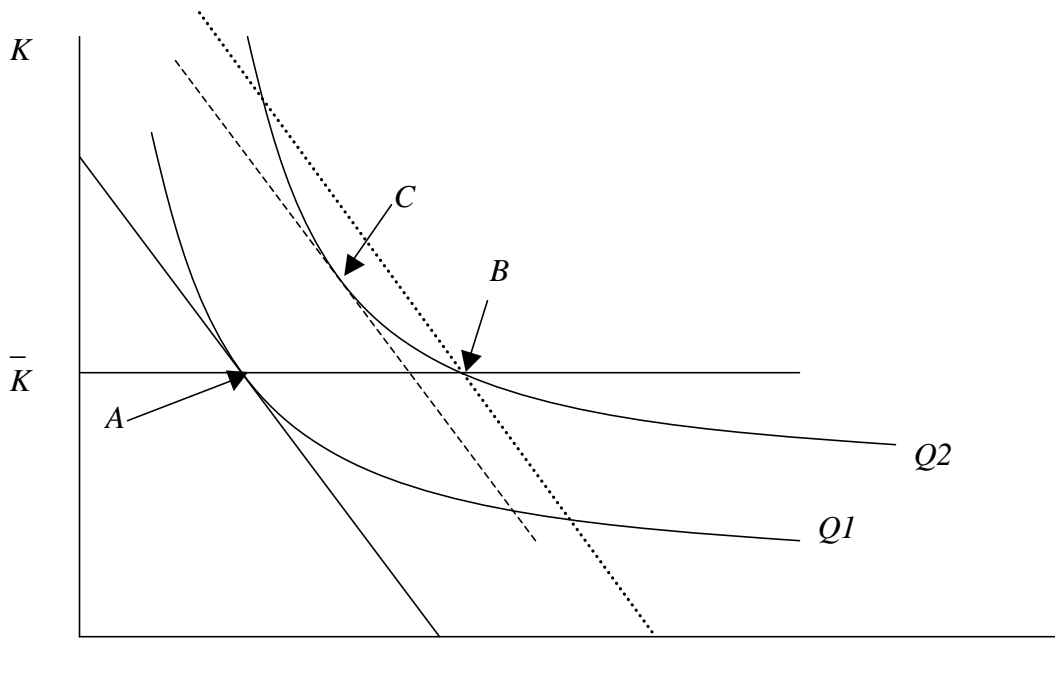
To maintain output = 1000 if labor is reduced by one unit require hiring over .5 units of K. As the labor cost savings will be \$30 but the extra capital will cost more than \$30, again, total cost will rise.

So in either case, moving off the expansion path will increase the cost of producing 1000 units.

Part C on the following page...

Now assume that the firm finds that to maximize profit, it needs to increase production in the short run, despite the fact that it is currently operating in the short run.

c. (8) Use the Isocost/Isoquant framework to graphically demonstrate and then verbally explain why the long run MC curve is different from the short run MC curve.



In the short run, the firm cannot adjust K , only L , if it wants to increase production from $Q = Q1$ to $Q = Q2$. This means the input mix changes from A to B . In the long run, the firm can adjust K and L to produce $Q = Q2$ at point C , which is at a lower cost than point B . As a result, MC is lower in the long run when the firm can adjust from producing off its expansion path to producing the same level of output on its expansion path.

6. (9) “It is just disgraceful the way construction supply companies are just raising the price of everything from plywood to shingles to nails in Louisiana. You know, just as the reconstruction of Louisiana is getting underway, the price of these goods is starting to go up. And don’t even get me started on rates charged by plumbers and electricians. I think congress has to enact some price controls to keep prices at their pre-Katrina level.”

Op-ed, Times-Pickmenose

Would Hazlitt agree? Explain your answer.

No, he would strongly disagree. Higher prices and positive economic profits will be the incentive for firms to bring construction supplies to the area. Higher rates charged by plumbers and electricians will cause some electricians and plumbers from other parts of the country to travel to Louisiana to help in the reconstruction. Higher prices are also the incentive for companies producing construction supplies to ramp up production to meet the higher demand. Price controls would stop all of this.

Scratch Sheet

Name _____