科目：經濟學　　　　系所組別：統計學研究所風險管理組　　是否使用計算機：否
考試時間：100 分鐘　　本科原始成績：100 分

Part I: Choose the best one answer for each of the following questions. (3% each)

1. The price elasticity of furniture has been reported at 1.26. Lee's Furniture Emporium decides to raise prices by 3%. What is your *most appropriate* conclusion?
   (a) Demand is elastic and total revenue will increase.
   (b) Demand is elastic and total revenue will decrease.
   (c) Demand is inelastic and total revenue will increase.

2. When the price of a cup of coffee is a constant Kenya Shillings(KES) 70 per cup, 10 cups of coffee are sold each hour at the Habari Café. However, when the price of tea falls from KES 70 per cup to KES 50 per cup, the quantity of coffee sold falls to 5 cups per hour. Assuming no other influences, the cross elasticity of demand for coffee with respect to the price of tea is *closest* to:
   (a) 0.57.　　　　　　　(b) 1.75.　　　　　　　(c) 2.00.

3. All else equal, if the elasticity of demand and the elasticity of supply both increase, which of the following is *most likely*?
   (a) Consumer surplus will increase and producer surplus will increase.
   (b) Consumer surplus will decrease and producer surplus will increase.
   (c) Consumer surplus will decrease and producer surplus will decrease.

4. Setting a minimum wage above the equilibrium wage in a labor market *most likely*:
   (a) creates a deadweight loss.
   (b) increases the firms' surplus.
   (c) increases the workers' surplus.

5. Using the following information, calculate the firm's economic profit.

Revenues	200,000
Cash Expenses	100,000
Economic depreciation	15,000
Accounting depreciation	20,000
Normal Profit	30,000
Forgone interest	12,000

   (a) 38,000.　　　　　　(b) 43,000.　　　　　　(c) 73,000.

6. Which of the following is not a type of opportunity cost?

(a) Normal profit.

(b) Economic profit.

(c) Implicit rental rate of capital.

7. Which of the following *best* describes the elasticity of demand in a perfectly competitive market?

   (a) The firm elasticity is zero and the market elasticity is infinite.

   (b) The firm elasticity is infinite and the market elasticity is zero.

   (c) The firm elasticity is infinite and the market elasticity is some finite number.

8. Using the following information, calculate which method is the most economically efficient to produce 8 units per day if one unit of labor costs $50 and each unit of capital costs $700.

	Quantity of Inputs	
	Labor	Capital
Manual process	100	5
Automated process	10	20

   (a) Manual, with per unit cost of $840.00.

   (b) Manual, with per unit cost of $1,062.50.

   (c) Automated, with per unit cost of $1,812.50.

9. Which of the following *best* defines the described production efficiency?

	Technological	Economic
(a)	Least inputs	Least cost
(b)	Least cost	Least inputs
(c)	Most outputs	Least cost

10. Compared to perfect competition, a natural monopoly will *most likely* be associated with a decrease in:

   (a) deadweight loss.

   (b) producer surplus.

   (c) consumer surplus.

11. An analyst gathered the following market share data for an industry comprised of six firms:

Firm	Market Share
A	30%

B	20%
C	15%
D	15%
E	10%
F	10%

The industry's four-firm concentration ratio and Herfindahl-Hirschman Index are closest to

	Four-Firm Concentration Ratio	Herfindahl-Hirschman Index
(a)	50%	1750
(b)	80%	1750
(c)	80%	1950

12. All else being equal, will the joint profit of an oligopolistic industry *most likely* be maximized if the:

	barriers to entry in the industry are low?	demand for the industry's products is stable?
(a)	No	No
(b)	No	Yes
(c)	Yes	No

13. All else equal, aggregate demand is *most likely* to decrease in response to a decrease in:
   (a) interest rates.
   (b) federal tax revenues.
   (c) expected corporate profits.

14. If the Federal Reserve increases the money supply, the *least likely* short-run effect is a decrease in:
   (a) interest rates.
   (b) imported goods.
   (c) investment spending.

15. When analyzing Gross Domestic Product (GDP), which condition is indicative of a recessionary gap? When potential GDP is:
   (a) above real GDP.
   (b) below real GDP.

(c) equal to real GDP.

16. Which of the following actions is *least likely* a policy instrument that the Fed can directly control or closely target?
   (a) Discount rate.
   (b) Inflation rate.
   (c) Commercial bank deposits at the Federal Reserve Banks.

17. If quantity demanded for a good rises 20% when incomes rise 2%, the good is a(n):
   (a) necessity.
   (b) luxury good.
   (c) inferior good.

18. A price ceiling is only effective if it:
   (a) is set above the equilibrium price.
   (b) is set below the equilibrium price.
   (c) has been in effect in over a relatively short time.

Part II: Answer the following problems.

1. From the LAC (long-run average cost) schedule in Table 1,

Table 1

Q	1	2	3	4	5	6	7	8	9	10	11	12
LAC($)	15	13	11.30	10	9	8.30	8	8.20	8.90	10	11.30	13

   (a) find the long-run total costs (LTC) schedule, and
   (b) derive the long-run marginal costs (LMC) schedule. What do these measure?
   (c) What is the relationship between LAC and LMC?　　(9%)

2. Suppose that a consumer has the MU_x (marginal utility) of Table 2 and the MU_y of Table 3. Suppose also that her money income is $10, $P_x = \$2$, and $P_y = \$1$.

Table 2

q_x	0	1	2	3	4	5	6	7	8	9	10
TU_x	0	14	26	37	47	56	64	70	74	77	78
MU_x		14	12	11	10	9	8	6	4	3	1

Table 3

q_y	0	1	2	3	4	5	6	7	8	9	10
TU_y	0	13	24	34	42	49	55	58	60	60	55
MU_y		13	11	10	8	7	6	3	2	0	-5

(a) Describe how this consumer should spend each of her $10 to purchase each unit of X and Y so as to maximize her total utility or satisfaction.

(b) Find the TU of this consumer if she spent all of her income (i) on X and (ii) on Y.

(c) Find the point of consumer equilibrium with $P_x = \$1$.

(d) How is this consumer's demand schedule for commodity X derived?　(12%)

3. Answer the following problems.

(a) Derive $y = A\sqrt{k}$ (output per worker) from the Cobb-Douglas production function
$Y = AK^{0.5}L^{0.5}$.　(3%)

(b) Prove that the equation for the steady state capital-labor ratio is $k^* = A^2(s^2/d^2)$ when there is no growth of the labor supply, the saving rate is s, and the depreciation rate is d.　(4%)

4. Equilibrium output is $430 when $C = \$20 + 0.80(Y - Tn)$, $I = \$60$, $Tn = Tx - Tr$, $Tx = \$40$, $Tr = \$10$, and $G = \$30$.

(a) Find equilibrium output when G increases from $30 to $40, *ceteris paribus*.

(b) Find equilibrium output when Tx increases from $40 to $50, *ceteris paribus*.

(c) Find equilibrium output when G increases from $30 to $40 and Tx increases from $40 to $50, *ceteris paribus*.　(9%)

5. Find the price elasticity of demand for the curvilinear demand function of the form $Q = aP^{-b}$.　(3%)

6. For the data in the following table,

	Before		After	
	Price	Quantity	Price	Quantity
Commodity	(dollars/unit)	(units/month)	(dollars/unit)	(units/month)
Hamburgers (Y)	3.00	30	2.00	40
Hot dogs (X)	1.00	15	1.00	10
Mustard (jar) (Z)	1.50	10	2.00	9
Hot dogs (X)	1.00	15	1.00	12

(a) Find the cross elasticity of demand between hot dogs (X) and hamburgers (Y) and between hot dogs (X) and mustard (Z).

(b) State the *ceteris paribus* conditions in finding e_{xy} and e_{xz}.　　(6%)