HAND IN
answers recorded
on question paper

Student Number.....

Queen's University at Kingston
FACULTY OF ARTS AND SCIENCE
Department of Economics
ECON111_W24_Final Examination **April 23, 2024**

Instructor: Rajni Dogra **Time Limit**: 3 Hours

Instructions:
Important! Read the instructions carefully before you start your exam.

Put your student number on all pages of all answer booklets.
Mark your selections for **PART A**, multiple choice answers on the provided **Scantron**. If you make changes, be sure to erase completely. Please record your name and student number on Scantron. Hand in the Scantron inside your answer booklet.
Write your answers for **PART B and PART C** in the **Answer booklet PROVIDED**. Please record your name and student number on the answer booklet. Hand in the scantron for Part A inside the answer booklet.
Marking Scheme:
Part A [60 marks] FOURTY Multiple-choice questions – 1.5 marks each
Part B [20 marks] FOUR of SIX Ture/False/Uncertain questions – 5 marks each
Part C [20 marks] ONE problem solving question.
Calculators: Non-programmable calculators are permitted. (Examples: those with Blue and Gold stickers and the pre-approved Casio FX991 series).

NOTE: Proctors are unable to respond to queries about the interpretation of exam questions. Do your best to answer exam questions as written.

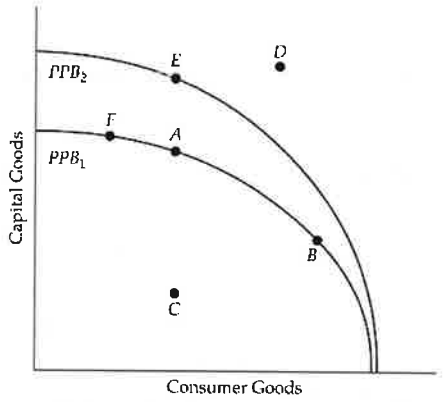
Part A

Multiple-Choice Questions [60 marks]

Each question is worth 1.5 marks. There is no negative marking for wrong answers.

1. A country's production possibilities boundary shows that when a society uses its resources efficiently,
A) it cannot produce more of one good without producing less of the other good.
B) it can produce more of only one good.
C) it is always possible to produce more of all goods.
D) all points inside the boundary are preferred to all points on the boundary.
E) the supply for goods always exceeds the demand.

2. *The diagram below shows two production possibilities boundaries for Country X.*



Refer to Figure above. If Country X, constrained by the production possibilities boundary PPB_1, is producing the combination of goods indicated at point F, it can produce more consumer goods by moving to one of the points
A) A or E.
B) D or E.
C) A, B, or C.
D) A or B, but not C.
E) A, B, C, D, or E.

3. Suppose economists at the World Bank discover a positive correlation between family income and female education levels in developing countries. We can say that
A) the correlation is inconsistent with a theory that an increase in female education levels causes an increase in family income.
B) an increase in family income causes an increase in female education levels.
C) an increase in female education levels causes an increase in family incomes.
D) there is a causal relationship between family income and female education.
E) the observed correlation is consistent with a theory that an increase in female education levels causes an increase in family income.

4. *The table below shows hypothetical monthly cell phone plan fees for the identical service over several years.*

2015	$55
2016	$50
2017	$40
2018	$35
2019	$25

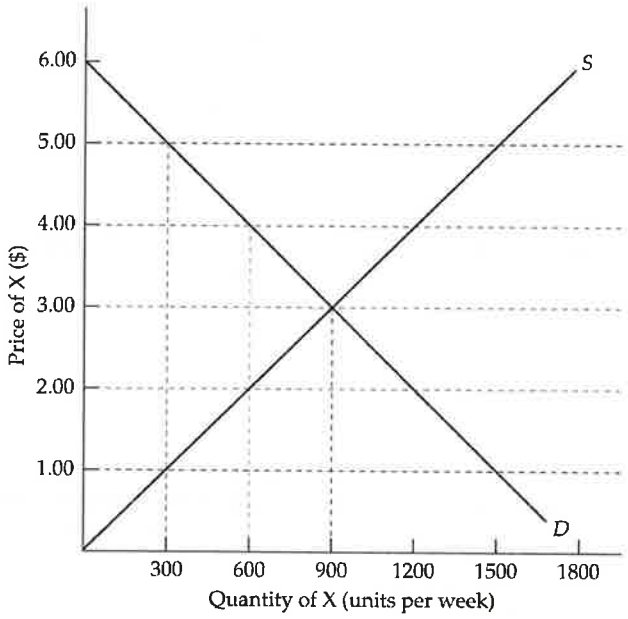
Refer to Table above. Assume that 2015 is used as the base year, with the index number = 100. What is the percentage change in the monthly fee from 2018 to 2019?
A) -28.6%
B) -10.0%
C) -71.4%
D) -25.0%
E) -35.0%

5. If the price elasticity of demand is 1.2, then a 10% increase in price results in a
A) 1.2% decrease in quantity demanded.
B) 12% decrease in quantity demanded.
C) 12% decrease in total revenue.
D) 1.2% increase in quantity demanded.
E) 12% increase in quantity demanded.

6. Which of the following statements would you expect to be true about the demand elasticities for cornflakes and food?
A) Compared with food, cornflakes have a lower price elasticity of demand because it is specifically defined.
B) Because cornflakes is food, but not all food is cornflakes, cornflakes would have a lower price elasticity of demand.
C) Food has a higher price elasticity of demand because it is a necessity.
D) Because cornflakes is food, cornflakes would have the same price elasticity of demand as food.
E) Food has a lower price elasticity of demand than cornflakes because it is more broadly defined.

7. Which of the following is an example of a black-market transaction?
A) A person buys a hotdog on a street corner.
B) A person buys a product at a price greater than the government-imposed ceiling price.
C) A person buys a product at a price below the government-imposed ceiling price.
D) A person places a bet at a racetrack.
E) A person buys a product at a price greater than the government-imposed price floor.

8. *The diagram below shows the market for some agricultural product, X.*



Refer to Figure above. Suppose the government has imposed a price floor at $4.00 per unit in this market. With this price floor in place, what is the weekly amount of deadweight loss in this market?
A) $2400
B) $1200
C) $600
D) $300
E) $150

9. Suppose the government decides to eliminate a binding price ceiling that it had previously imposed on a particular good. It can be expected that
A) the price would increase, quantity demanded would decrease, and quantity supplied would decrease.
B) the price would increase, quantity demanded would decrease, and quantity supplied would increase.
C) the price would decrease, quantity demanded would decrease, and quantity supplied would increase.
D) the price would decrease, quantity demanded would increase, and quantity supplied would decrease.
E) no change would take place

10. *The table below shows the quantities of toffee bars and bags of cashews that a consumer*

could consume over a 1-week period.

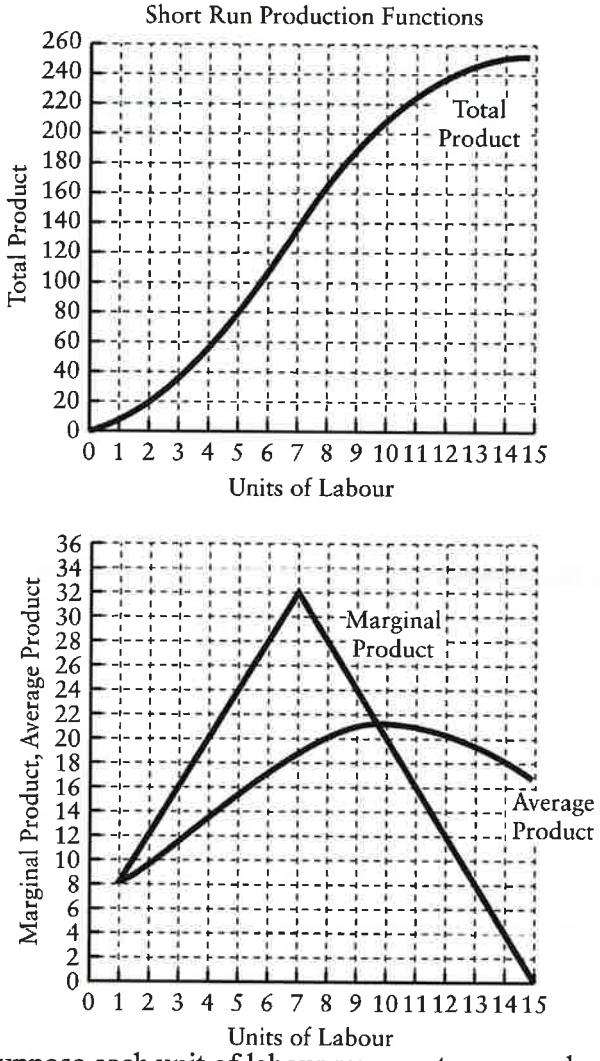
	Toffee (bars)		Cashews (bags)	
Units	Marginal Utility	Total Utility	Marginal Utility	Total Utility
1	10	10	12	12
2	8	18	10	22
3	5	23	7	29
4	3	26	5	34
5	1	27	2	36
6	0	27	1	37
7	0	27	0	37

Refer to Table above. If the prices of toffee bars and bags of cashews are both $1 and this consumer has $7 per week to spend on these two snacks, how many of each will he/she purchase to maximize utility?
A) 2 toffee bars and 5 bags of cashews
B) 3 toffee bars and 4 bags of cashews
C) 4 toffee bars and 3 bags of cashews
D) 5 toffee bars and 2 bags of cashews
E) 6 toffee bars and 1 bag of cashews

11. Suppose a consumer can purchase only two goods, soap and apples. If the price of soap falls and the consumption of apples increases, we can conclude that the increased consumption of apples is due to
A) neither the income effect nor the substitution effect.
B) both the income effect and the substitution effect.
C) the income effect only.
D) the substitution effect only.
E) the deflation effect.

12. At a garage sale, Ken purchases a used bicycle for $8 when he was willing to pay $25. If the bicycle costs $75 new, Ken's consumer surplus is
A) $0.
B) $17.
C) $33.
D) $50.
E) $67.

13.



Refer to Figure above. Suppose each unit of labour represents one worker for one month. What is the maximum number of workers the firm could hire so that the final worker hired still raises the average product of the other workers?

A) 7
B) 8
C) 9
D) 11
E) 15

14. Consider a basket-producing firm with fixed capital. If the firm can produce 24 baskets per day with 3 workers and then increases production to 36 baskets per day with 4 workers, then which of the following statements is definitely true?

A) The firm has passed the point of diminishing marginal productivity.
B) The marginal productivity of the fourth worker is 9.
C) The firm has passed the point of diminishing average productivity.
D) With 4 workers, the average product is greater than the marginal product.

E) With 4 workers, the marginal product is greater than the average product.

15. Suppose a firm is producing 10 000 units of output. At this level of output, average total cost is $200 and average fixed cost is $20. It can be concluded that total variable cost is
A) $180.
B) $1800.
C) $18 000.
D) $180 000.
E) $1 800 000.

16. Under which of the following circumstances is a firm's short-run marginal costs decreasing?
A) average fixed cost is increasing
B) total fixed cost is decreasing
C) marginal product is decreasing
D) marginal product is increasing
E) capacity is reached

17. *The following data show the total output for a firm when different amounts of labour are combined with a fixed amount of capital. Assume the wage per unit of labour is $10 and the cost of the capital is $50.*

Labour per period	Total output per period
0	0
1	10
2	30
3	90
4	132
5	150

Refer to Table above. The average total cost when producing 150 units of output is approximately
A) 33 cents.
B) 40 cents.
C) 67 cents.
D) 80 cents.
E) $1.50.

18. For a firm with only two inputs, capital and labour, the condition $MP_K/MP_L = P_K/P_L$ guarantees that the firm is
A) at its profit-maximizing output but is not necessarily minimizing its costs.
B) minimizing its costs but is not necessarily maximizing its profits.
C) technically efficient but not economically efficient.
D) economically efficient but not technically efficient.
E) at its profit-maximizing and cost-minimizing level of output.

19. Suppose RioTintoAlcan is considering the construction of a new aluminum smelter in Northern Quebec, the operation of which requires a great deal of electricity. Suppose also that the price of electricity is predicted to rise significantly in the near future. As a result, the firm decides to embark on new research and development which leads to the development of a new production technique that uses less electricity per tonne of aluminum produced. This is an example of
A) the marginal rate of substitution between factors.
B) innovation away from increases in factor prices.
C) short-run cost minimization.
D) short-run profit maximization.
E) long-run economies of scale.

20. Suppose capital costs $6 per unit and labour costs $3 per unit. If the marginal product of capital is 3 and the marginal product of labour is 6, the cost-minimizing firm should
A) employ more of both capital and labour.
B) employ less of both capital and labour.
C) employ more capital and less labour.
D) employ less capital and more labour.
E) not change its current factor use.

21. *Consider the following total cost schedule for a perfectly competitive firm producing ball-point pens.*

Output per period	TVC ($)	TFC ($)
0	0	5
10	2	5
20	3	5
30	6	5
40	10	5
50	15	5

Refer to Table above. As this firm increases output from 40 units to 50 units per period, its marginal cost rises to
A) $0.10.
B) $0.17.
C) $0.375.
D) $0.40.
E) $0.50.

22. Consider a perfectly competitive firm producing and selling mousetraps at a market price of $5.00. Suppose this firm is producing 1500 mousetraps and its average total cost is $5.10 per unit. The firm will be
A) suffering losses of $7650.
B) earning profits of $7650.
C) breaking even.

D) earning profits of $150.
E) suffering losses of $150.

23. If a single-price monopolist sets price where the price elasticity of demand exactly equals 1, its
A) total profits are at a maximum.
B) marginal revenue is always positive.
C) total revenue is rising, although marginal revenue is falling.
D) total revenue is falling.
E) total revenue is at its maximum.

24. Suppose a single-price monopolist knows the following information:

Price	Quantity	TR	MR	Fixed Cost	TC	ATC	MC
$5.00	2000		$4.00	$2000		$5.00	$3.00

Refer to Table above. The total profit being earned by this firm at the current level of output is
A) -$2000.
B) -$1000.
C) 0.
D) $1000.
E) $2000.

25. In the first half of the twentieth century, Joseph Schumpeter described a process of "creative destruction." A broadly similar phenomenon is occurring in the economy today, and we refer to it as
A) de-industrialization.
B) globalization.
C) hollowing out.
D) artificial intelligence.
E) disruptive technology.

26. *Suppose two firms, Allstom from France, and Bombardier from Canada, are bidding on a contract to replace train cars for the subway system in Mexico City. If they bid the same amount, they share the contract—otherwise, the low bid wins. The figure below shows the payoff matrix for this contest.*

		Allstom (A)	
		A bids $50 million	A bids $35 million
Bombardier (B)	B bids $50 million	Profit to A: $10 m Profit to B: $10 m	Profit to A: $5 m Profit to B: $0 m
	B bids $35 million	Profit to A: $0 Profit to B: $5 m	Profit to A: $2.5 m Profit to B: $2.5 m

Refer to Figure above. If Allstom and Bombardier co-operated with each other when bidding on the contract, then the likely outcome is that
A) each firm bids $35 million, and each earns profit of $2.5 million.
B) each firm bids $50 million, and each earns profit of $10 million.
C) Bombardier bids $50 million, and earns profit of $0, while Allstom bids $35 million and earns profit of $5 million.
D) Bombardier bids $35 million, and earns profit of $5 million, while Allstom bids $50 million and earns profit of $0.

27. "Brand proliferation" in an oligopolistic industry
A) allows easier entry to a new entrant with small sales.
B) can shift the average total cost curve down and raise the overall minimum scale of operation.
C) allows new entrants to the industry to gain significant market share.
D) will generally reduce the expected market share of new entrants to the industry.
E) allows firms to cooperate to maximize their joint profits.

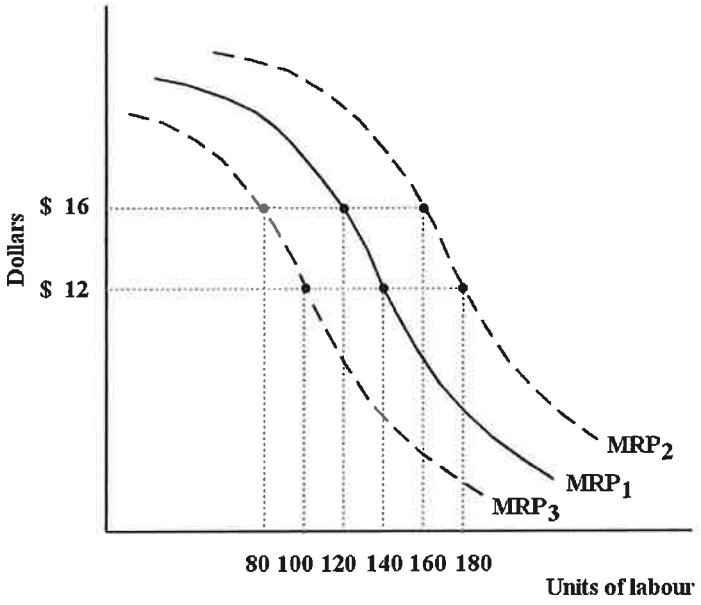
28. An oligopolistic firm can earn positive profits
A) because there are barriers to entry.
B) only in the long run.
C) only in the short run.
D) only if it advertises its own product.
E) only if it maintains excess capacity in the production of it product.

29. Consider an industry with three profit-maximizing firms producing identical soccer jerseys. At their current levels of output, Firm A has a MC of $22, Firm B has a MC of $26, and Firm C has a MC of $27. Each firm is minimizing its costs for its given level of output. Which of the following statements is definitely true?
A) Each firm and the industry are productively efficient.
B) Each firm is productively efficient but the industry is not.
C) The industry is productively efficient but each firm is not.
D) Each firm is allocatively efficient but the industry is not.
E) Each firm and the industry are allocatively efficient.

30. Policymakers who are responsible for maintaining a competitive environment face particular challenges in the technology sector. Which of the following is a relatively new and potent entry

barrier that is *particular* to the technology sector?
A) The imposition of regulations prohibiting the creation of new firms.
B) The technology giants have unprecedented access to financial capital due to extraordinarily high sales revenues.
C) The ability to target advertising directly to their consumers through the use of big data.
D) The benefits to any individual user increase with growth in the total number of users of the technology sector.
E) The significant political contributions made by tech industry leaders in an effort to influence policy decisions regarding their industry.

31. *The diagram below shows the MRP curve for a firm producing copper plumbing pipe. The factor of production being considered here is hours of labour.*



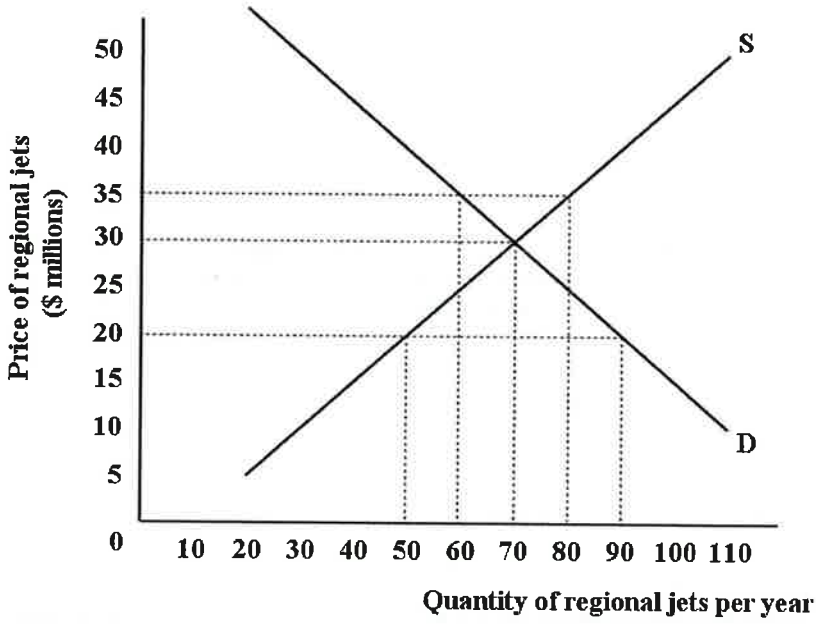
Refer to Figure above. This firm's MRP curve is the firm's
A) derived demand for copper plumbing pipe.
B) demand curve for labour.
C) market demand curve for copper plumbing pipe.
D) marginal product of labour curve.
E) total product curve for labour.

32. Two nations want to engage in trade but discover that one of them is more efficient in producing all goods. In this case,
A) each nation should export the good in which it has a comparative advantage.
B) no trade is possible.
C) the more efficient country should produce all goods and export them.
D) the less efficient country should engage in importation of goods only.
E) the more efficient country should import all goods.

33. Consider the possibility of trade between countries. When opportunity costs differ between countries,
A) comparative advantages may not exist.
B) specialization and trade can lead to increases in the production of all commodities.
C) each country should produce only those goods for which it has an absolute advantage.
D) only the smaller countries will benefit from trade.
E) only the larger countries will benefit from trade.

34. Suppose two countries each produce wool and cotton. The country with the lower opportunity cost for cotton (in terms of wool) is said to have
A) a comparative advantage in the production of wool.
B) a comparative advantage in the production of cotton.
C) an absolute advantage in the production of wool.
D) an absolute advantage in the production of cotton.
E) an absolute advantage in the production of both wool and cotton.

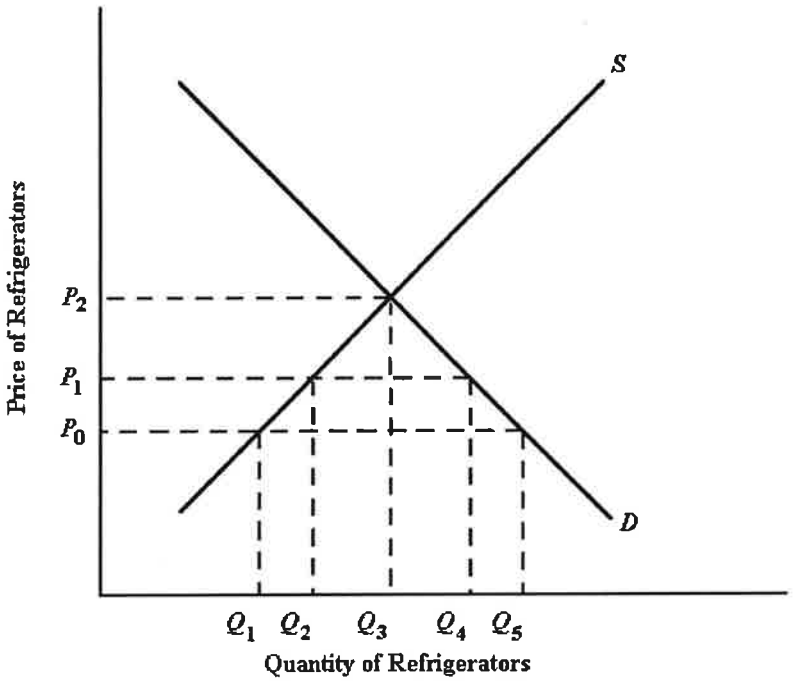
35. *The diagram below shows the (hypothetical) demand and supply curves for regional jets in Canada. Assume that the market is competitive, all jets are identical, and that Canada engages in international trade.*



Refer to Figure above. If the world price of a regional jet is $35 million, Canada will
A) neither import nor export any jets.
B) import 60 jets per year.
C) import 20 jets per year.
D) export 80 jets per year.
E) export 20 jets per year.

36. Consider the following statement: "Without a doubt, free trade improves the lives of every Canadian citizen." This statement is _____ because _____.
A) correct; it is consistent with the idea of comparative advantage
B) correct; because Canada has long been a successful trading nation
C) incorrect; it fails to recognize that the movement to free trade involves both winners and losers
D) incorrect; we do not know much about the benefits of free trade
E) correct; there are no net costs associated with the movement to free trade

37. *The diagram below shows the demand and supply curves for refrigerators in Canada.*



Refer to Figure above. Suppose P_0 is the world price. If Canada imposes a tariff causing the price of refrigerators in Canada to rise from P_0 to P_1, the consequence would be that
A) both domestic production and domestic consumption would decrease by equal amounts.
B) domestic production will increase from Q_1 to Q_2 and domestic consumption will fall from Q_5 to Q_4.
C) domestic production will increase from Q_1 to Q_3 and domestic consumption will fall from Q_5 to Q_3.
D) domestic production will exceed domestic consumption.
E) both domestic production and domestic consumption would increase by equal amounts.

38. An example of "real" capital is
A) shares in a corporation.
B) corporate bonds.
C) a firm's balance in a bank account.

D) a firm's computer systems.
E) a firm's retained earnings.

39. When a plant is operating at the level of output where its short-run average total cost is at its minimum,
A) average fixed cost is at a minimum.
B) marginal cost is at a minimum.
C) average variable cost is at a minimum.
D) the plant is operating at its capacity.
E) more of the variable factor of production should be employed.

40. Suppose ABC Corp. is a firm producing newsprint in a perfectly competitive industry. Its output is 1500 tonnes per month, the marginal cost of the last tonne produced is $710, and the average revenue per tonne is $620. In the short run, this firm should
A) reduce output.
B) increase output until average revenue is equal to marginal cost.
C) increase output until marginal revenue is equal to marginal cost.
D) definitely shut down.
E) The price of the product is not known, so it is not possible to determine.

Part B

True/False/Uncertain Questions [20 marks]

Each question is worth 5 marks.
Answer any four of the following six questions in the answer booklet. Only the first four answers will be counted towards scores.

Explain why the following is True, False, or Uncertain according to economic principles. Use diagrams and/or numerical examples where appropriate. Unsupported answers will receive no marks. It is the explanation that is important.

B1. Consider Canada's production possibilities boundary. Suppose fire destroys many millions of hectares of valuable Canadian forest. The effect of this on the Canadian economy would be best illustrated by a movement along the production possibilities boundary. Explain. **[5 marks]**

B2. Are both or just one of the following statements use the term "demand" correctly?
Statement 1: An increase in the price of copper will lead to a decrease in the demand for copper.
Statement 2: An increase in the price of copper will lead to an increase in the demand for aluminum (a substitute for copper). Explain. **[5 marks]**

B3. Suppose you are advising the government on changes in the gasoline market. The current price is $1.00 per litre and the quantity demanded is 2.5 million litres per day. Short-run price

elasticity of demand is constant at 0.3. If the supply of gasoline is reduced so that the price rises to $1.50 per litre, then quantity demanded is predicted to fall in the short run by 15%, and total expenditure will rise. Explain. **[5 marks]**

B4. Consider a house-construction firm with fixed capital. The firm can build 8 houses per year with 16 workers and 8.8 houses per year with 17 workers. If it is currently building 8.8 houses per year, the firm has already passed the point of diminishing marginal productivity. Explain. **[5 marks]**

B5. Consider the textile industry, which we assume to be a competitive industry, and which experiences continuous cost-reducing technological change. Are both or just one of the following statements best describes this industry?
Statement 1: High-cost textile mills will co-exist with low-cost mills as long as the revenue for the high-cost mills is covering their variable costs.
Statement 2: The price of the product is determined by the minimum ATC of the lowest-cost plants. Explain. **[5 marks]**

B6. Consider a monopolist that is able to distinguish between two distinct market segments, A and B, for its product. Marginal cost is constant at $100 for each unit produced. The firm is currently selling its output at a single price and allocating its output across segments such that marginal revenue in segment **A** is $85 and marginal revenue in segment **B** is $105. This firm is not maximizing its profit as it can increase its profits by price discriminating across the two market segments. Explain. **[5 marks]**

Part C

Problem Solving Questions **[20 marks]**

Answer all parts (four) of the following question in the answer booklet.
Read each part of the following question very carefully. There are sub-parts of each of four parts. To get maximum marks, answer all sub-parts of the question. And show steps of your calculations. Use diagrams where ever required.

C1.

(a) *The table below displays hypothetical demand and supply schedules for the market for overnight parcel deliveries in Canada.*

	Quantity Demanded (millions)		Quantity Supplied (millions)	
Price ($)	Year 1	Year 2	Year 1	Year 2
30	80	95	140	125
26	90	105	135	120
22	100	115	130	115
18	110	125	125	110
14	120	135	120	105
10	130	145	115	100

Refer to Table above.

i. What is the equilibrium price and quantity for overnight parcel delivery in Year 1 and Year 2. **[1 mark]**

ii. If the price of overnight parcel delivery in Year 2 is $10, how many parcels will actually be delivered? Explain. **[1 mark]**

iii. Explain two reasons behind the change in the market for overnight parcel delivery between Year 1 And Year 2? **[2 marks]**

iv. Describe the change in equilibrium price and quantity in this market between Year 1 and Year 2? Compare the equilibrium price and quantity between Year 1 and Year 2. **[3 marks]**

(b) *The table below provides the annual revenues and costs for a family-owned firm producing catered meals.*

Total Revenues ($)	500 000
Total Costs ($)	
- wages and salaries	200 000
- risk-free return of 6% on owners' capital of 250 000	15 000
- rent	105 000
- depreciation of capital equipment	25 000
- risk premium of 8% on owners' capital of 250 000	20 000
- intermediate inputs	150 000
- forgone wages of owners in alternative employment	80 000
- interest on bank loan	10 000

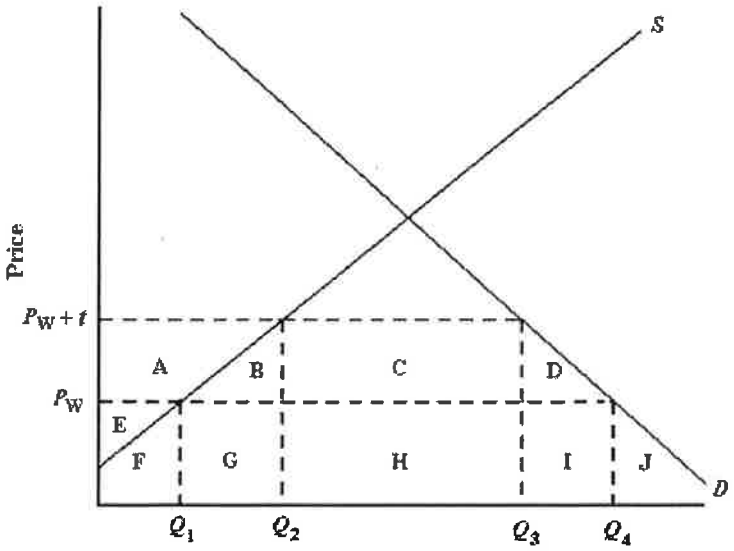
i. Refer to Table above. Calculate the *explicit* costs for this family-owned firm. **[2 marks]**

ii. Calculate the *implicit* costs for this family-owned firm. **[2 marks]**

iii. Calculate the accounting profits for this family-owned firm. **[1 mark]**

iv. Calculate the economic profits for this family-owned firm. **[1 mark]**

(c) *The diagram below shows the domestic demand and supply curves for cotton towels in Canada. The prevailing world price of cotton towels is* P_W. *Assume that all cotton towels are identical.*



Refer to Figure above. If Canada imposes a tariff of $\$t$ per cotton towel, what would be the deadweight loss to the Canadian economy. Write the area and Explain. **[3 marks]**

d. Suppose Canada has a 20% tariff on the import of carpets, and Canada currently imports this product from India at a with-tariff price of $22. The with-tariff price of identical carpets from the United States is $24. Now suppose a free-trade agreement with the U.S. eliminates the tariff and so the no-tariff price from the U.S. is $20. Canada now purchases carpets from the U.S. Canada is not better off from this trade diversion? Explain how? **[4 marks]**