Topic:

Costs, Revenues and Profits

Additional Resources:

- Class website
- Class podcast

Costs

- **Short run**: A period of time during which at least one factor of production is fixed in supply.
- **Long run:** A period of time during which all the factors of production are variable in quantity.
  - **Explicit costs** are costs incurred by a firm when it pays an amount of money for something, e.g. when a firm pays its electricity bill of €500.
  - **Implicit costs** *It is implicit as it is money that is not received, i.e. an* ***opportunity cost*** *or the cost of foregone alternatives.*
  - Videos

Types of costs

Cost	Explanation
Fixed	• Are costs that don't change as output changes. Fixed costs will be incurred even when output is zero, e.g. rent of premises.
Variable	• Are costs that vary as output changes. As the level of output increases, variable costs increase.
Total	• Equals fixed and variable costs added together, giving us the total cost of production
Marginal	• Is the change in total cost as a result of the production of one extra unit of output

$$\text{Average cost} = \left(\frac{TC}{Q}\right) \text{ or } (AFC + AVC)$$

$$\text{Average fixed cost} = \frac{FC}{Q}$$

$$\text{Variable cost} = \frac{VC}{Q}$$

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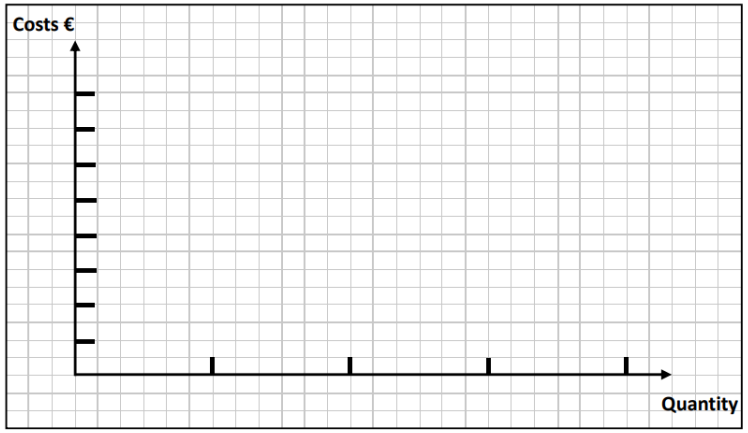
(a) (i) You have been given the data below for a firm.

On the graph paper provided below, draw and label:

- the fixed costs for this firm and
- the variable costs for this firm.

Note: You must complete/fill in the quantity axis and the costs axis.

Quantity (units of output)	1	2	3	4
Fixed Costs in €	600	600	600	600
Variable Costs in €	500	600	700	800



(ii) Explain the difference between fixed costs and variable costs. Give an example in each case.

	Explanation	Example
Fixed Costs	_____ _____ _____	
Variable Costs	_____ _____ _____	

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(b) The figures below represent the costs of building an average 3-bedroom semi-detached house in rural Ireland.

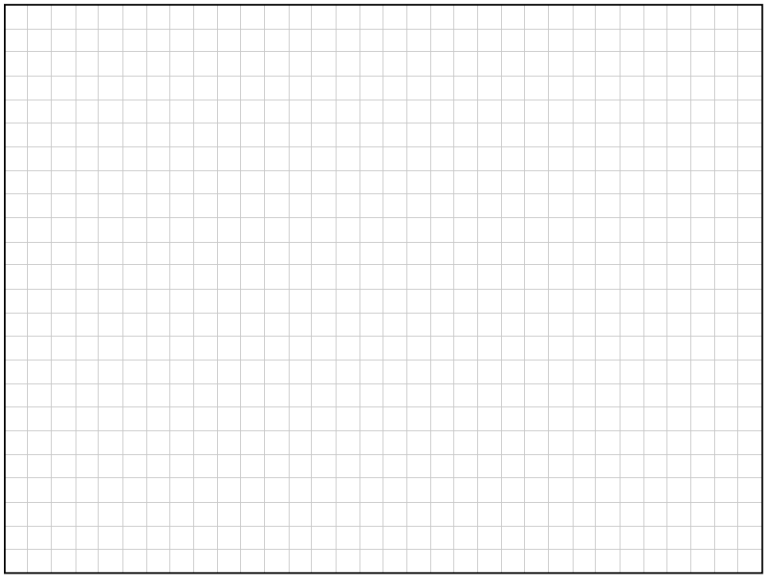
Adapted from scsi.ie

(i) Calculate the missing figures for A, B, and C in the table below.

Units of Housing	Fixed Cost (€)	Variable Cost (€)	Total Cost (€)	Average Total Cost (€)	Marginal Cost (€)
1	100,000	260,000	A	360,000	-
2	100,000	300,000	400,000	B	40,000
3	100,000	350,000	450,000	150,000	C
4	100,000	405,000	505,000	126,250	55,000

Calculations:		
A:	B:	C:
Answer:	Answer:	Answer:

(ii) Using the figures obtained in the table above draw and label:
the **Fixed Costs**, **Variable Costs**, and **Total Costs** on the graph paper below.



(iii) If the firm earns €55,000 for an additional unit of output produced, how many houses should it produce? Explain your answer.

Answer:
Explanation:

Exam Q

The table below shows the output and total costs in a firm.

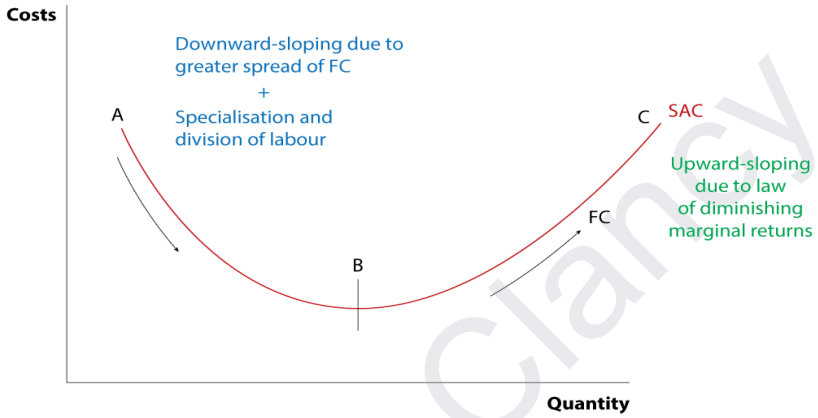
(a) Complete the missing average cost and marginal cost figures in the table below.

Output (units)	1	2	3	4
Total Cost (€)	55	82	108	152
Average Cost (€)	55		36	
Marginal Cost (€)	N/A	27		

Workings:

Shape of Short Run Average Cost (SRAC) Curve

Diagram Showing SRAC



Shape of a Short Run Average Cost (SRAC) Curve

Downward sloping Part	• **Specialisation/division of labour**: This can occur if production increases and the firm decides to employ specialists or if existing workers concentrate on a smaller number of tasks. This can lead to greater efficiency and thereby lowers unit costs. • **Greater spread of fixed costs**: As a company expands, its fixed costs will not increase directly as more is produced. Fixed costs are static over a range of output and behave in a step-like fashion. Therefore, fixed costs are spread over an increasing number of units and as production increases, the fixed cost per unit falls.
Upward sloping part	• The **law of diminishing marginal returns** - as more and more of a variable factor is added to a fixed factor, at some stage the increase in output caused by the last unit of the

Relationship between Short Run AC and MC

video

Complete following table and draw ATC and MC

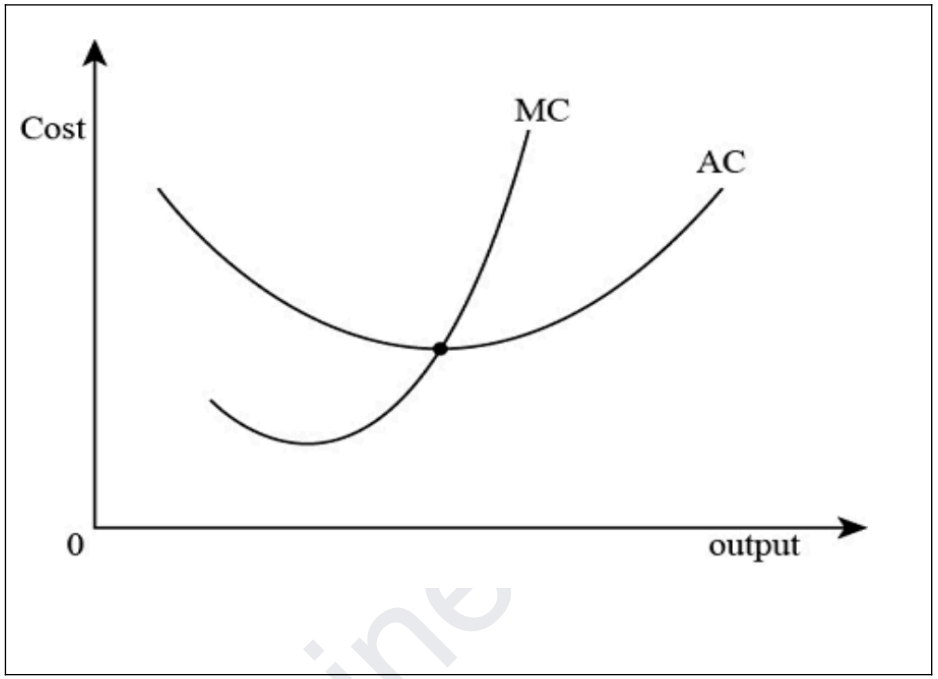
Qty	FC	VC	TC	MC	AFC	AVC	ATC
0	50	0					
1		18					
2		30					
3		55					
4		80					
5		110					
6		142					
7		244					
8		390					

Complete following table and draw ATC and MC

Short run production costs for hotel 1

Qty	FC	VC	TC	MC	AFC	AVC	ATC
0	25	0					
1		20					
2		27					
3		35					
4		45					
5		60					
6		80					
7		105					
8		145					

Relationship between AC and MC



- The MC curve typically has a U-shape due to the **law of diminishing marginal returns**.
- If marginal cost is less than average cost, then average cost is falling.
- If marginal cost is greater than average cost, then average cost is rising.
- If marginal cost equals average cost, then average cost is constant / at its minimum point.

Law of Diminishing Marginal Returns (LDMR)

- LDMR is when more and more of a **variable factor** is added to a **fixed factor**, at some stage the **increase in output** caused by the last unit of the variable factor will begin to **decline**.
  - To produce more in the **short run**, a company requires increasing quantities of the variable factor (labour) per unit produced to increase output. In other words, it takes more workers to produce a given quantity of output than it did when production first began.
  - Watch video and video 2

Law of diminishing marginal returns

Number of workers	Total output	Marginal (extra) output	Average output per worker
1	20		
2	32		
3	45		
4	56		
5	65		
6	72		
7	77		

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(b) Firms can survive in the short run even if they are making a loss. Explain this statement.

Explanation:

OR

(c) In the long run only the most efficient firms will survive.
Explain this statement.

Explanation:

Exam Q: 2022 Deferred Paper

(c) **(i)** On one diagram, draw and fully label, the Short Run Average Cost Curve (SRAC) and the Marginal Cost Curve for ABC Ltd.

(ii) Explain the reasons for the shape of the SRAC.

Downward sloping part:
Upward sloping part:

(iii) Explain the relationship between Marginal Costs (MC) and Average Costs (AC).

Explanation:

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(a) With the aid of a fully labelled diagram below (including the axes), explain the relationship between a firm's short run average cost curve and its marginal cost curve.

Explanation:

(b) Explain the shape of the short run average cost curve that you drew in **(a)** above.

Downward sloping part:
Upward sloping part:

Shut Down Price

What is a company's shut down point in the short run?

- In the short run, a business may make a loss. But it does not mean they will shut down. Let's compare 2 hotels.

Hotel 1		Hotel 2	
Fixed costs (mortgage)	6,000	Fixed costs (mortgage)	6,000
Variable costs (wages)	10,000	Variable costs (wages)	10,000
Total costs	16,000	Total costs	16,000
Total revenue	12,000	Total revenue	9,000

- Both firms are making a loss in the short run, hotel 1 should stay in business, while hotel 2 should shut down
- In the short run, firms should **cover its variable costs** and contribute to the reduction of their fixed costs.

Shutdown point in the short run?

- Shut Down Price: AR = AVC
- In the short run a firm must cover its **average variable costs** while waiting for an increase in price of output / or a reduction in total costs / as it may be making a contribution to its fixed costs.

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(b) To remain in production, in the **short run** a firm must cover its average total costs. Do you agree or disagree with this statement?

Agree: ☐ Disagree: ☐

Explain your answer.

Explanation:

OR

(c) Explain the relationship between the Marginal Cost Curve and the Average Cost Curve.

Explanation:

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China is the world's powerhouse in manufacturing goods e.g. clothing. Its share of world exports in these products dwarfs every other nation. This is seemingly unaffected by the law of diminishing marginal returns. Adapted from hks.harvard.edu

(a) Explain the economic concept of the law of diminishing marginal returns.

Explanation:

(b) Harvard Kennedy School suggests that China's next area of specialisation will move from clothing to high tech exports.

Adapted from hks.harvard.edu

Outline two cost advantages China's firms experience through **specialisation**.

1.
2.

Exam Q: 2022 Deferred Paper

(b) Specialisation involved in hairdressing is beneficial to both the consumer and the hairdresser. Outline one benefit of this specialisation to the **consumer**.

Benefit:

(c) Outline one possible economic disadvantage of specialisation to the **hairdressing salon**.

The Long Run

- In the long run, all factors of production (land, labour, capital and enterprise) are **variable** and the company may use the exact amount of each factor to achieve maximum efficiency.
- In effect, the long run is a series of **short runs** into the future.
- Likewise, the long run average cost (LRAC) curve is made up of the **minimum poin**t of many SAC curves.

What determines the LRAC

- As the firm grows in size, it experiences cost savings called **economies of scale**. These savings cause the LRAC to slope downwards and average costs decrease.
- The **upward part** of the LRAC is due to **diseconomies of scale** and average costs begin to increase.

Economies of Scale

- Arise when **average cost** / unit cost of production falls as output rises / as firm expands its scale of operations. Video

    - **Internal Economies of Scale** are forces **within** a firm which cause the average / unit costs of that firm to decline as the firm grows in size.
    - **External Economies of scale** are forces **outside** a firm which cause the average / unit costs of that firm to decline as the industry grows in size. eg. transport, infrastructure, education, R&D, increased suppliers

Internal Economies of Scale for Airlines

Type	Explanation
Technical	• A firm in the aircraft / airline industry could justify the purchase of a large fuel efficient aircraft because it can **spread the cost** of such equipment over a larger number of passengers.
Construction	• Large hangers cost less per square metre to erect than small ones / building costs do not increase in proportion to the size of the firm • i.e. it does not cost twice as much to build an extension of 20,000 m square as it does to build 10,000 m square
Production	• Firms in the aircraft industry can keep the production process **continuous.**
Integrated	• An aircraft manufacturer can reduce its per unit cost by involving itself at more than one stage in the **production process.**
Purchasing	Large firms can usually negotiate **discounts** as they buy in **bulk** e.g. Ryanair • negotiated more favourable prices when buying a large quantity of Boeing aircraft/economies for the purchase of fuel.
Financial	• A large aircraft manufacturer will have access to a greater range of finance options than a small manufacturer and is more likely to be able to borrow at **lower rates of interest.**

Diseconomies of Scale

- The average / unit costs of that firm **increase** as the firm grows in size.
    - **Managerial diseconomies:** The bigger the firm, the more stretched the management team becomes. Communication may become a problem, so **inefficiencies** may develop, which increase costs for the firm.

    - **Reduced Staff Morale:** Specialisation and division of labour may lead to workers becoming bored with repetitive tasks and the quality of the work may suffer as a result. As the bakery expands, the interests of the workers and management may conflict and lead to industrial relations problems. Morale may suffer which can lead to increasing costs for the firm.

Question 3

(a) Draw the Long Run Average Cost Curve.

(b) Outline **one** example of an Internal Economy of Scale, and outline **one** example of an External Economy of Scale that a firm may experience.

Revenue

- **Average revenue (AR):** Also known as Price (or calculated: TR/Q)
- **Marginal revenue (MR):** Change in total revenue divided by change in quantity
- **Total Revenue (TR):** Price X Quantity

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The table below shows the daily revenue for Headhunters, a local hairdressing salon.

Quantity of Haircuts	Average Revenue	Total Revenue	Marginal Revenue
15	€21		
18	€19		
22	€17		
28	€15		

(a) Complete the total revenue column and the marginal revenue column in the table above. Show all your workings.

Workings:

Profit / Loss

- Profit / Loss: Revenue minus cost

- Profit is important for a business to continue to earn profit (in the long run).
  - Profits are necessary for the entrepreneur to **remain in business**. It is the return on their time and effort to keep the business going.
  - **Easier to raise finance**: the existence of profits will make it easier to raise finance e.g. a bank loan or to get investors to buy shares.
  - **Fund expansion:** profits will enable the business to expand and grow.
  - **Encourages risk taking**: profits are necessary for an entrepreneur to undertake risks
  - **Reward innovation**: a business which earns profit may encourage those who are most efficient or those who are minimizing costs.

- **Profit Maximisation Point: MR=MC (**Really important**)**
  - This is the level of output at which producing one more unit would add no extra profit.

Aims other than Profit Maximisation

1. **Satisficing:** Firms aim to make a 'good enough' profit rather than the maximum, e.g. a family-run café in West Clare charging fair prices to maintain a steady income and work–life balance.

2. **Increased Market Share:** Firms may accept lower profits to attract more customers, e.g. Ryanair offering very low fares to dominate the Irish and European aviation market.

3. **Corporate Social Responsibility (CSR):** Firms act ethically even if it reduces profit, e.g. SuperValu supporting local Irish suppliers and reducing plastic packaging to protect the environment.

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(b) The table below shows the output, total cost, total revenue and **profit**/loss earned for portable chargers for electronic devices.

The selling price is €15 per item sold.

Output (Units)	0	200	400
Total Cost	€500	€2,500	€4,500
Total Revenue	€0	€3,000	
Total Profit or Loss	**-€500**	**€500**	

(i) Calculate the total revenue if the firm sells **400 units**.
Show your workings.

Workings:
Answer:

(ii) Calculate the **profit earned** when the firm sells 400 units. Show your workings.

Workings:
Answer:

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(c) **(i)** Explain the terms fixed costs and variable costs and state one example of each.

Fixed Costs:
Example:
Variable Costs:
Example:

(ii) Outline one reason why it is important for a business to **continue to earn profit** (in the long run).

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Answer either (a) or (b)

(a) **(i)** Explain the term fixed costs.

(ii) Indicate by means of a tick (✓) which of the costs in the table below are fixed costs and which costs are variable costs.

	Fixed Cost	Variable Cost
Wages €1,000		
Raw materials €1,500		
Light & heat €300		
Rent of the premises €750		

(b) A bakery receives €5,000 in total from its sales in a week.
The table above shows the costs of production for the bakery for the week.
Using the information provided calculate the following:

(i) The total cost of operating the bakery for the week.
(ii) The net profit the bakery earned in the week.

Show your workings.

Total Cost:	**Net Profit:**
Answer:	Answer: