MICROECONOMICS FREE-RESPONSE QUESTION INSTRUCTIONS

- This section consists of short answers and problem-solving questions. The question set for FRQ Scenario 1 set is worth 18 points, and for question set FRQ Scenario 2, the total is worth 22 points.
- Allocate your time wisely. Some questions may require more time to answer fully, so plan accordingly to ensure you can attempt all questions in this section.
- Read each question carefully before you begin your response. Ensure that you fully understand what is being asked before starting your answer.
- For questions that involve calculations, it is important to show all your work clearly.
- Partial credit may be awarded for correct methods, even if the final answer is incorrect.
- Use graphs and diagrams where applicable to illustrate your answers. Label all axes and curves clearly, and explain the significance of any shifts or changes depicted.
- Provide clear explanations and justifications for your answers. When asked to discuss or analyze, support your arguments with relevant economic theories, models, or data.
- Write legibly and ensure your answers are concise and to the point. Focus on the key aspects of the question and avoid unnecessary information.
- If time permits, review your answers before moving on to the next section. This will give you an opportunity to correct any errors or add any additional points.
- If you wish to appeal any part of the test, you can do so by completing the appropriate form located at our website: https://economicsolympiad.org/appeals after the test has concluded.
- The last 5 pages of this test booklet have been provided for your calculations, practice, or any other notes you may need to make during the exam. We suggest labeling these pages as “Work Pages” or “Scratch Pages”. Please note that any work or answers written on these pages will not be graded unless specifically directed to do so.

FRQ Scenario 1. Supermarket Oligopoly
Total: 18 points

The Mergers and Monopolies Commission of the country of Tarauslia investigated the supermarket sector of the country, revealing that the market share of the supermarkets in the country changed considerably between 2014 and 2024.

Market share Percentage	**2014**	**2024**
The Duper Market	**42**	**62**
Eat and Drink	**33**	**38**
Fond Joe's	**20**	**0**
Little local	**5**	**0**
Total	**100%**	**100%**

Questions

a. Calculate the two-firm concentration ratio (CR_2) for 2014 and 2024. Show your calculations. (1 point)
b. Calculate the Herfindahl-Hirschman Index (HHI) for 2014 and 2024, then calculate the change in the HHI between the two years. Show your calculations. (2 points)
c. Using your answers from parts (a) and (b), explain how market concentration and market power changed between 2014 and 2024. (3 points)
d. Define contestability. If Tarauslia's supermarket industry were highly contestable in 2024, explain what this suggests about the ability of Duper Market and Eat and Drink to abuse their market power. (3 points)

Additional Information

The Mergers and Monopolies Commission concludes that Duper Market and Eat and Drink are colluding. The firms have increased prices by a much greater percentage than supermarkets in other countries facing similar production costs and market conditions.

Additional Questions

e. True or False: Firms in a collusive oligopoly maximize individual firm profits. Explain your answer. (1 point)
f. Draw a fully labelled diagram of a collusive oligopoly, indicating joint profit-maximizing price, output, and economic profit area. (4 points)
g. Recommend two policies the Mergers and Monopolies Commission could use to reduce the abuse of market power in this industry. Explain how each policy would improve competition and total welfare. (4 points)

FRQ Scenario 2. Lake Victoria Sustainability
Total: 22 points

Lake Victoria is Africa's largest freshwater lake with a surface area of approximately 68,800 km². It is shared by the countries of Tanzania, Uganda, and Kenya. It is a significant hub for commercial fishing, especially for the species of Nile perch, a key export good, and tilapia, which is often consumed locally. Overall the annual catch in Lake Victoria has a market value of USD$1.1 billion. These commercial fishing activities sustain "millions of families, feeding communities, powering local communities".

Unfortunately, the lake is under increasing sustainability threats. Overfishing has led the Nile perch's catch volumes to fall by around 70% in the last two decades. Also, there is increased water pollution and biodiversity loss. Excessive and uncontrolled development along shoreline areas is also contributing to higher pollution levels and further reducing biodiversity in Lake Victoria.

Questions

a. Describe why Lake Victoria is classified as a common-access (common-pool) resource. (2 points)
b. Using an appropriate diagram, illustrate how overfishing of Nile perch creates a negative production externality. (4 points)
c. Identify one third party negatively affected by overfishing in Lake Victoria and describe how that party is harmed. (2 points)
d. Analyze why the free market fails to allocate Lake Victoria's fishery resources efficiently, providing two reasons. (4 points)

Additional Information

Tanzania controls about 50% of Lake Victoria. In January 2026, Tanzania's Minister for Livestock and Fisheries Dr. Bashiru Ally, announced that measures need to be taken to protect the lake's ecosystems. Specifically, he noted that a significant part of the overfishing is due to industrial operators. These are large capital-intensive firms using well equipped fishing boats capable of catching large volumes of fish. They are also accused of using illegal fishing practices due to weak monitoring.

Under the new policy, industrial fishing operators will no longer be allowed to operate in the areas of Lake Victoria controlled by Tanzania. Instead the fishing will be allowed for small-scale fishermen, who often use fishing boats and traditional fishing methods. The fish-processing industry will have to source (get) its fish from these small-scale operators.

Additional Questions

e. Using an appropriate diagram, illustrate how the proposed policy could reduce environmental degradation and improve the sustainability of Lake Victoria's fishery. Assume the policy effectively reduces total fishing and environmental damage for the purpose of this question. (4 points)

f. Assume you are an economic adviser to Tanzania's Ministry for Livestock and Fisheries. Recommend two conditions that must be met for the proposed policy to achieve its intended objectives and provide a rationale for each recommendation. (4 points)
g. Suggest one additional government policy that could improve the long-run sustainability of Lake Victoria's fishery and justify how it would address the market failure. (2 points)

Sources (adapted)

- Daily News Tanzania, *Tanzania Moves to Rein in Industrial Fishing on Lake Victoria* (January 13, 2026). Available at: https://dailynews.co.tz/tanzania-moves-to-rein-in-industrial-fishing-on-lake-victoria/
- Lake Victoria Fisheries Organisation, *Nile Perch Fisheries Management Plan III (2021–2025).* Available at: https://lvfo.org/sites/default/files/field/NILE%20PERCH%20FISHERIES%20MANAGEMENT%20PLAN%20III.pdf

Microeconomics FRQ Scenario 1. Answer Key

FRQ Scenario 1. Supermarket Oligopoly
Total: 18 points
Questions

a. Using the Concentration Ratio calculate the CR2 for the two largest firms in 2014 and 2024. (1 point)

- 1 point for correct CR2 values for both years:
  2014: CR2 = 42 + 33 = **75%**
  2024: CR2 = 62 + 38 = **100%**
  (0 points for any other result.)

b. Using the HHI (Herfindahl-Hirschman Index) find the difference in the HHI in 2014 and 2024. (2 points)

- If the student calculates only the 2014 HHI (3,278) or 2024 HHI (5,288) they receive **1 point.**
- If the student calculates both the 2014 and 2024 HHIs but does not calculate the difference they receive **1 point.**
- It is necessary to show all work/calculations. If the student does not, **subtract 1 point**.
- **0 points** if the student has not calculated correctly either the 2014 or the 2024 HHI.

c. Using Answer a and Answer b, briefly comment on the change in market power in Tarauslia in 2014 and 2024. (3 points)

1 point for noting than the market has become more concentrated.

2-3 points for noting that the market was already highly concentrated in 2014 (CR2 = 75%, HHI well above the 2,000 threshold) and has become even more concentrated by 2024, resulting in a duopoly with CR2 rising to 100% and HHI rising by 2,010 points. Students may note that this raises concerns about

anti-competitive behaviour and reduced consumer choice, but there is no penalty if they do not.

d. Define contestability. If Tarauslia's supermarket industry were highly contestable in 2024 briefly comment on what this suggests about the ability of Duper Market and Eat and Drink to abuse their market power. (3 points)

- **1 point** for an accurate definition of contestability.
- **2-3 points** for noting that high contestability in the Tauraslian supermarket industry could limit the ability of Duper Market and Eat and Drink to abuse the market concentration and charge prices far above competitive pricing (allocative inefficiency and Lerner Index may be mentioned) due to the threat of new entrants.

(If a student has not defined contestability, the maximum points the student can receive in this question are 2.)

e. **True or False: Firms in a collusive oligopoly maximize individual firm profits. Explain your answer. (1 point)** False: Collusive oligopolies do not maximize each firm's individual profit because the firms agree to behave like a single monopoly, maximizing joint (industry) profits rather than the profit of any one firm. (0 points if the answer is simply true or false without explanation.

f. **Draw a fully labelled diagram of a collusive oligopoly, indicating joint profit-maximizing price, output, and economic profit area.** (4 points)

- **1 pt** for correctly labeled axes (Price on vertical, Quantity on horizontal). The student may apply the graph to the supermarket industry but that is not necessary.
- **1 pt** for showing the colluding firms behaving as a shared monopoly through a single downward-sloping D and corresponding MR below it
- **1 pt** for MC curve drawn correctly intersecting MR determining collusive output Q and price P.
- **1 pt** for drawing an Average cost curve with the MC curve passing through its minimum point and correctly marking/ shading the supernormal/abnormal profit area which should be noted as Joint Profits.

g. **Recommend two policies the Mergers and Monopolies Commission could use to reduce the abuse of market power in this industry. Explain how each policy would improve competition and total welfare.** (4 points)

Award 2 pts per policy (up to two policies):

- **1 pt** for correctly identifying the policy
- **1 pt** for a brief, accurate explanation of how the policy reduces abuse of market power in this specific context.
- Award marks for the first two policies listed only. Additional policies beyond two are not awarded marks.

Acceptable policies include:

- Lowering barriers to entry to increase contestability
- Price regulation / price caps

- Increased monitoring and fines for collusion
- Mandatory information sharing / transparency requirements
- any other reasonable policy.

Microeconomics FRQ Scenario 2. Answer Key

FRQ Scenario 2. Lake Victoria Sustainability
Total: 22 Points

Questions

a. Describe why Lake Victoria is classified as a common-access (common-pool) resource. (2 points)

- **1 pt** for identifying that Lake Victoria is non-excludable: no single party can effectively prevent others from fishing it (shared by three countries, open access)
- **1 pt** for identifying that fishing is rivalrous/diminishable: one fisher's catch reduces the stock available to others, and the lake's ecological capacity is finite and depletable

b. Using an appropriate diagram, illustrate how overfishing of Nile perch creates a negative production externality. (4 points)

The goal is to create a complete production externality diagram.

- **1 pt** for correctly labelled axes (Cost / Price on vertical, Quantity on horizontal.) Students may apply directly to the case study (i.e., fish caught on horizontal but that is not necessary)
- **1 pt** for a downward-sloping MPB (= demand) curve and an upward-sloping MPC curve, intersecting at the free-market equilibrium (Q_m, P_m)
- **1 pt** for an MSC curve drawn above the MPC, reflecting the additional marginal external cost at every output level to reflect the external costs of overfishing intersecting MPB at the socially optimal output Q_{opt}.
- **1 pt** for correctly identifying and shading the deadweight welfare loss triangle.
- (The student may use different labelling for Qopt/Qm and should not be penalised for this.)

c. Identify one third party negatively affected by overfishing in Lake Victoria and describe how that party is harmed. (2 points)

- **1 pt** for correctly identifying a specific third party (e.g. future generations of fishers, local coastal communities etc.)
- **1 pt** for a clear, concise explanation of how these parties are negatively affected (e.g. future fishers face a depleted Nile Perch stock and lower ability to generate income)

d. Analyze why the free market fails to allocate Lake Victoria's fishery resources efficiently, providing two reasons. (4 points)

Award 2 pts per reason. Each one marked as follows:

- **1 pt** for correctly identifying a way in which the free market has failed
- **1 pt** for a brief, accurate explanation of the identified way in which the free market has failed.

Acceptable responses include:

- Lack of property rights: Lake Victoria is a common access resource shared by three countries. No single owner exists to restrict access or manage the stock sustainably, so individual fishers have no incentive to limit their catch.
- Divergence of private and social costs (negative production externality) firms bear only their private costs (fuel, labour, equipment) and do not account for the broader social and environmental costs of stock depletion and ecosystem damage (MSC > MPC), leading to overproduction beyond the socially optimal level.
- Short-term profit motive: individual operators focus on maximising immediate catch and revenue with no regard for the long-run sustainability of fish stocks
- Any other acceptable way in which the free market has failed to protect Lake Victoria

Additional Questions

e. Using an appropriate diagram, illustrate how the proposed policy could reduce environmental degradation and improve the sustainability of Lake Victoria's fishery. (4 points)

The graph is worth up to two points (**2 pts**), and the explanation up to two points (**2 pts**).

- **1 pt** for a correctly labelled diagram illustrating the effect of banning industrial operators through a leftward shift of supply - moving the S curve closer to the MSC curve.
- **1 pt** for showing the reduction of the welfare loss and the move of the market quantity (Qm) closer to the Qopt.
- **1-2 pts** for explaining that banning industrial operators will reduce overfishing and that small-scale, traditional fishing methods impose lower environmental costs (less habitat destruction), reducing the negative production externality and noting/showing that the quantity moving from the market level toward the socially efficient level, supported by a clear explanation. *(Note: A student may simply use a D/S diagram with a supply curve shifted to the left. If this is correctly labelled and accurate, it can also be rewarded with up to 2 points.)*

f. **Assume you are an economic adviser to Tanzania's Ministry for Livestock and Fisheries. Recommend two conditions that must be met for the proposed policy to achieve its intended objectives and provide a rationale for each recommendation.** (4 points)

Award 2 pts per requirement (up to two requirements):

- **1 pt for** correctly identifying the requirement
- **1 pt for** a clear, concise explanation of why this requirement is necessary.

Acceptable requirements include:

- Monitoring and enforcement: without effective policing of Tanzania's waters, industrial operators may continue illegal fishing; penalties must be credible and consistently applied
- Diplomatic coordination with Kenya and Uganda: a ban only in Tanzania's waters is undermined if industrial fishing continues freely in the other two countries' zones. Fish move freely from the area of control of one country to that of the other, so a multilateral agreement is needed to protect the shared stock.
- Economic support for small-scale fishers (tax breaks, subsidies) to be able to increase production to the maximum sustainable levels.
- Tax rebates for fish processing firms to keep their costs low enough that their processing operations in Lake Victoria remain profitable.
- Any other logical response

g. **Suggest one additional government policy that could improve the long-run sustainability of Lake Victoria's fishery and justify how it would address market failure.** (2 points)
   - **1 pt** for proposing a clearly identified, relevant policy
   - **1 pt** for a brief explanation of how it addresses the overfishing or pollution problem

Appropriate policies can include:

- Public education campaigns to raise environmental awareness among fishing communities and consumers
- A Pigouvian tax on catch volumes above a set threshold to internalise external costs
- Shoreline development regulations / zoning laws to reduce pollution and habitat loss
- Lake clean-up programmes and restoration of littoral vegetation to rebuild biodiversity
- any other appropriate policy