



The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Agricultural & Plantation Engineering

Study Programme: **Bachelor of Science Honours in Engineering Programme**

Name of the Examination: **Final Examination**

Course Code and Title : **AGM4307 Economics and Marketing for Engineers**

Academic Year : **2024/25**

Date : **16-02-2026**

Time : **9.30 – 12.30**

Duration : **3 hours**

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General Instructions

1. This is a Closed Book Test.
2. This question paper consists of **six (6)** questions in **six (6)** pages.
3. **Answer five (5)** questions including question No 01.
4. Question No. 01 contains 10 structured questions. Answer these questions in the space provided and attach the paper to the answer book.
5. Read all the questions carefully before answering.
6. Answer for each question should commence from a new page in the answer book.
7. Do not use red colour pens.

In case of doubt, please consult the supervisor or an invigilator in the examination hall.

Question No 01.

Answer all 10 structured questions in the space provided. (2x10= 20 marks)

1. Which of the following statements best explains the importance of economics for engineers?

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- a. It helps engineers avoid technical calculations
- b. It helps engineers design only the cheapest solutions
- c. It helps engineers make decisions under limited resources and trade-offs
- d. It replaces engineering judgment with financial rules

2. An economy faces three basic economic questions. When the government chooses between alternative projects, which economic question is it answering?

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3.

- a. What are the **three (3)** types of economies evolved since ancient societies up to modern global economies?

i.

ii.

iii.

- b. What is the type of economy found in Sri Lanka at present?

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4. List **four (04)** types of resources available for producing goods and services.

a.

b.

c.

d.

5. How do you differentiate between monopoly and monopolistic market?

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6. An engineering firm has enough resources to undertake **only one** of the following projects:

- Project A: Expected annual profit of Rs. 6 million
- Project B: Expected annual profit of Rs. 4 million

a. If the firm chooses Project B, what is the opportunity cost?

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b. Explain your answer.

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7. Define the term 'scarcity' using an example from electricity supply, in Sri Lanka.

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8. Consider electricity consumption by households in Sri Lanka.

a. Is electricity a necessity or a luxury good in Sri Lanka?

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b. How does an increase in income affect the demand for electricity?

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9. Suppose the demand of good "X" dropped from 20MT to 10MT as a response to the price increase from Rs. 100 to Rs. 120 of good "Y".

a. What is the relationship between good X and Y.

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b. Calculate the cross-price elasticity of demand.

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10. a. Write the formula used to calculate GDP using the expenditure approach.

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b. Calculate the GDP using the expenditure approach if a country has the following data for a year:

- Consumption: 500 million
- Investment: 150 million
- Government spending: 200 million
- Exports: 100 million
- Imports: 80 million

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Answer any four (04) Questions from questions 2 to 6. Write your answers in the answer book.

Question 2:

The Ministry of Power and Energy is concerned about the rising electricity charges faced by small manufacturing workshops. To reduce production costs, the government proposes a maximum electricity tariff of **Rs. 18 per kWh** for small-scale industrial users.

The demand and supply functions for electricity for this sector are estimated as:

$$Q_D = 2400 - 40P \quad Q_S = 400 + 20P$$

Where

P = electricity tariff (Rs. per kWh)

Q = electricity consumed (thousand kWh per month)

For this analysis, electricity units can be treated as identical.

- Calculate the equilibrium price and quantity that would prevail without the tariff ceiling. **(4 marks)**
- Calculate the consumer surplus and producer surplus at this equilibrium. **(4 marks)**
- illustrate the consumer surplus and producer surplus at equilibrium Using a clearly labeled diagram, **(4 marks)**
- If the proposed tariff ceiling is imposed, determine the quantity of electricity that will be supplied. **(4 marks)**
- Graphically illustrate the new consumer surplus and producer surplus under the tariff ceiling. **(4 marks)**

Question 3:

The table below presents data for a firm producing **Good X** in a **perfectly competitive market**. The firm uses standard engineering inputs such as labour hours and machine time, and the market price of Good X remains constant.

Quantity of Good X	Total Revenue	Total Costs	Marginal Revenue	Marginal Cost	Profits
0	0	20			
5	75	45			
10	150	65			
15	225	90			
20	300	130			
25	375	190			
30	450	280			
35	525	400			

- Complete the table by calculating **marginal revenue (MR)**, **marginal cost (MC)**, and **profit** at each level of output. Illustrate the **MR and MC** curves on a graph with quantity on the X-axis. **(10 marks)**

- b. Using the graph, identify the **profit-maximizing level of output** for the firm and justify your answer. **(3 marks)**
- c. Calculate the **average cost** at the profit-maximizing level of output. **(2 marks)**
- d. State the **MC** at the profit-maximizing level of output and explain its economic significance. **(5 marks)**

Question 4:

- a. Define the term *externality*. Explain your answer with an example relevant to engineering or industry. **(4 marks)**
- b. What is the economic term used to describe the inefficiency that arises when externalities are present? Briefly explain why this inefficiency occurs. **(4 marks)**
- c. Explain the concept of *internalization of an externality*. Why is internalization important for achieving economic efficiency? **(4 marks)**
- d. Using a clearly labeled diagram, illustrate how internalization of an externality leads to a socially efficient level of output. **(4 marks)**
- e. Differentiate between *command-and-control instruments* and *economic (market-based) instruments* used to mitigate externalities. Give one example of each. **(4 marks)**

Question 5: Briefly discuss any **four (4)** of the following statements. **(5 marks each)**

- a. Cyclone Ditwah struck Sri Lanka. Briefly discuss its economic impact on the construction sector.
- b. Engineering decisions are constrained by limited resources. Explain how scarcity, trade-offs, and opportunity cost influence engineering project selection.
- c. The Production Possibility Frontier (PPF) can be used to illustrate key economic ideas relevant to engineering, such as efficiency, opportunity cost, and technological change. Explain with the help of a diagram.
- d. A tax may be legally imposed on either producers or consumers. However, regardless of who is formally taxed, the economic burden of the tax is shared between producers and consumers. Explain using graphical illustrations.
- e. Specialization and trade between engineering firms or countries improve productivity and overall welfare. Briefly explain why trade is mutually beneficial.

Question 6:

- a. Explain the difference between real and nominal GDP. **(03 marks)**
- b. In 2025, an engineering firm manufactured and sold **5 industrial water pumps** at a price of **Rs. 200,000 per pump**. In 2026, due to increased demand for infrastructure projects and higher input costs, the price of the same pump increased to **Rs. 240,000 per unit**, and the firm sold **6 pumps**. Assuming **2025** as the base year,
 - i. Calculate the **nominal GDP** for 2026. **(02 marks)**
 - ii. Calculate the **real GDP** for 2026 measured in 2025 prices. **(02 marks)**
 - iii. Briefly explain what is meant by the term **GDP deflator**. **(03 marks)**
- c. Using your knowledge on macroeconomics, discuss the impact of current macroeconomic issues on the construction industry in Sri Lanka. **(10 marks)**