

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



0031

Study Programme : Bachelor of Industrial Studies Honours (Agriculture)
: Bachelor of Science Honours in Engineering (Agricultural Engineering) Programme
Name of the Examination : Final Examination
Course Code and Title : **AGX6284 Impact of Climate Change on Water Resources**
Academic Year : 2024/25
Date : 7th March 2026
Time : 1:30 pm - 4:30 pm
Duration : 3 hours

Index number

General instructions

1. Read all instructions carefully before answering the questions.
2. Answers should be in clear handwriting.
3. Do not use red colour pen.
4. This question paper consists of two (02) sections.

Section 1

- Consists of 15 questions in **six (06)** pages.
- Answer all questions.
- All questions carry equal marks.
- Write answers only in the space provided.
- Please do not remove the question paper from the examination hall.
- You may spend **one (01)** hour to answer this section.

Section 11

- Contain **six (06)** questions in ^{two} **(02)** pages.
- Answer any **four (04)** questions.
- You may spend **two (02)** hours to answer this section.
- All questions carry equal marks.
- Answer for each question should commence from a new page.

SECTION 1

1. List **five (5)** causes for ozone layer destruction?

- i).....
- ii).....
- iii).....
- iv).....
- v).....

2. What is the "**Green House Effect**"?

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3. Explain the difference between **Climate** and **Weather**?

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4. What are major rainfall monsoon periods in Sri Lanka?

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5. Define the term of "**Aquifer**" and give the classification of aquifers based on the confinement.

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6. List **five (05)** impacts on groundwater recharge and resources.

- i).....
- ii).....
- iii).....
- iv).....
- v).....

7. List **five(5)** importance of using climatic change models by scientists.

- i).....
- ii).....
- iii).....
- iv).....
- v).....

8. Define the term of **General Circulation Model (GCM)** and state one (1) strengths and one (1) limitation of General Circulation Model (GCM)?

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9. List **three (03)** adaptations to climate change in the water sector

- i).....
- ii).....
- iii).....

10. Describe the influence of climate change on future food security.

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11. List **four (04)** methods of methane releasing methods for the atmosphere.

i).....

ii).....

iii).....

iv).....

12. What is a **Non-Climate Scenario**? Give an example for it.

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13. What is the speciality of **Earth System Models (ESMs)** over other climate change models.

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14. List three (03) current policies or legislation related to water resources

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15. Write the word **"True"** if the statement is correct and the word **"False"** if otherwise

- i) Ozone layer depletion increases the amount of ultraviolet radiation reaching the Earth's surface.
- ii) High atmospheric pressure areas are usually associated with clear and dry weather conditions.....
- iii) Confined aquifers are overlain by an impermeable layer that restricts vertical water movement.....
- iv) Overextraction of groundwater can lead to saltwater intrusion in coastal areas.....
- v) Increased carbon dioxide concentration in the atmosphere contributes to global warming.....

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SECTION 2: Answer any four (04) questions.

1. a) Briefly describe the greenhouse effect and its role in regulating Earth's temperature
(10 marks)

b) Analyze the causes of enhanced greenhouse effect due to human activities and explain its environmental consequences.
(15 marks)
2. a) Briefly discuss the ability and need of models to project future climate.
(10 marks)

b) Explain about different climate change models available globally/ locally and their specific characteristics.
(15 marks)
3. Briefly describe the aquifers in Sri Lanka
(25 marks)
4. Explain what are the adaptation and mitigation methods to face the challenges on water resources in Sri Lanka due to impact of climate change.
(25 marks)

5. Explain what is of Integrated Water Resources Management and the importance in a county like Sri Lanka.

(25 marks)

6. Write short notes on following topics.

a. Ozone depletion **(5 mark)**

b. Limitations of General Circulation Models (GCMs) to Predict Future Climate Change **(5mark)**

c. Major water withdrawal types of Sri Lanka **(5 mark)**

d. Adaptation Measures for Climate Change on Agriculture in Sri Lanka **(5 mark)**

e. Adaptation measures for Climate Change on Coastal Water Resources in Sri Lanka **(5 mark)**