

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024

Subject Code:3161312

Date:28-11-2024

Subject Name: Global Warming and Climate Change

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) What is meant by climate variability and climate change?	03
	(b) State the elements of the Climate. Explain any two in detail.	04
	(c) Explain the significance of Global warming and Climate change in Environmental Engineering field.	07
Q.2	(a) Give the statistical contribution of greenhouse gases in the atmosphere.	03
	(b) Discuss the role of Oceans with respect to Global Warming.	04
	(c) How does Methane can contribute in climate change? What are the sources and impacts?	07
	OR	
	(c) “An estimate of the average rise in sea level is a useful measure of the future impact of global warming in terms of damage to property and loss of life”, Justify the statement.	07
Q.3	(a) How has climate change created an impact on India?	03
	(b) Explain the concept of Carbon Capture and Sequestration.	04
	(c) Explain the types of CO ₂ Capture technologies in detail with schematic block diagram.	07
	OR	
Q.3	(a) Discuss the Post-combustion capture systems in detail.	03
	(b) Differentiate between weather model and climate model.	04
	(c) Enlist and explain configuration of CO ₂ Capture and Storage may for use in electricity generation with schematic block diagram	07
Q.4	(a) Discuss the application of Climate Modelling.	03
	(b) State the objectives of IPCC.	04
	(c) Define and discuss the pathways for Carbon Dioxide Removal (CDR) and Negative Emissions.	07
	OR	
Q.4	(a) Discuss the Oxy-fuel combustion capture systems in detail.	03
	(b) Discuss the advantage of Carbon Capture and Utilization (CCU)	04
	(c) Discuss the Industrial Process Capture System for following Industry:	07
	a. Natural gas sweetening	
	b. Steel production	
	c. Cement production	

- Q.5** (a) What is the Kyoto Protocol? On which mechanism it works? **03**
(b) What is CDM of Kyoto Protocol? How does CDM work? **04**
(c) Explain in detail How does economic system help to solve economic issues and problems in an economy? **07**

OR

- Q.5** (a) Enlist the important findings of IPCC AR5. **03**
(b) What is the difference between joint implementation and Clean Development Mechanism? **04**
(c) Discuss the Impacts of 1.5°C and 2°C of Warming. **07**
