

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3161312****Date:06/06/2022****Subject Name:Global Warming and Climate Change****Time:10:30 AM TO 01:00 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.

	<b>MARKS</b>
<b>Q.1</b> (a) Differentiate between Weather and Climate.	<b>03</b>
(b) Enlist and explain any one element of weather.	<b>04</b>
(c) Discuss the sources of methane and its climatic effects in detail.	<b>07</b>
<b>Q.2</b> (a) Define the following terms:	<b>03</b>
1. Short-lived climate forcers (SLCF)	
2. Emission trading	
3. Climate Projection	
(b) Discuss the role of IPCC and UNFCCC.	<b>04</b>
(c) Explain earth's energy budget in detail.	<b>07</b>
<b>OR</b>	
(c) Discuss the pathways to achieve the Kyoto target.	<b>07</b>
<b>Q.3</b> (a) How anthropogenic activities exert cooling influence on earth's climate ?	<b>03</b>
(b) Classify the climate models.	<b>04</b>
(c) Discuss Global Longitudinal Wind Pattern in detail.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Define the following terms :	<b>03</b>
1. Radiative Forcing	
2. ITCZ	
3. Carbon Capture and Sequestration (CCS)	
(b) Differentiate between weather model and climate model.	<b>04</b>
(c) Discuss Global Latitudinal Wind Pattern in detail.	<b>07</b>
<b>Q.4</b> (a) Define the following terms :	<b>03</b>
1. Climate Sensitivity	
2. Climate feedback	
3. Representative Concentration Pathway (RCP) Scenario	
(b) Discuss global ocean conveyor belt in detail.	<b>04</b>
(c) Discuss the Global Carbon Cycle in detail.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Discuss effect of climate change on Precipitation.	<b>03</b>
(b) Discuss the indications of global warming.	<b>04</b>
(c) Discuss the GHG emission mitigation action.	<b>07</b>

- Q.5** (a) How do greenhouse gases such as carbon dioxide cause global warming? **03**
- (b) Discuss effect of climate change on agriculture and food production. **04**
- (c) Discuss the Impacts of 1.5°C and 2°C of Warming. **07**

**OR**

- Q.5** (a) Define the following terms : **03**
1. Thermohaline circulation
  2. Gulf stream
  3. Ocean current
- (b) Enlist and explain any one components of a climate model. **04**
- (c) Define and discuss the pathways for Carbon Dioxide Removal (CDR) and Negative Emissions. **07**

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