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## ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

CIVIL ENGINEERING

Semester VII

CE5029 GLOBAL CLIMATE CHANGE

(Regulation 2019)

Time: 3hrs

Max. Marks: 100

CO1	Understand the science and basic of weather and climate
CO2	Student will attain the knowledge on natural and anthropogenic activities, which accelerate the climate change
CO3	Acquire knowledge on various protocols and agreement that help to control and reduce climate change impacts
CO4	Know the adaptive techniques to build the climate resilience society
CO5	Gain awareness about the stress on natural based resources and to conserve it from natural calamities

**BL – Bloom's Taxonomy Levels**

(L1-Remembering, L2-Understanding, L3-Appling, L4-Analysing, L5-Evaluating, L6-Creating)

**PART - A(10x2=20Marks)**

(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	Why cryosphere is considered as an important component of climate system	2	1	L2
2	What is meant by radiative forcing?	2	1	L1
3	Write the energy balance equation if at the Earth's surface, absorbed sunlight is balanced by the net IR emission and the conduction/convection and evapotranspiration	2	2	L1
4	Mention the effects of La Nina	2	2	L1
5	Where and when COP29 was hosted recently? What was its key focus?	2	3	L2
6	What is meant by cap and trade system?	2	3	L3
7	In what ways climate insurance will help the communities?	2	4	L2
8	List the factors affecting methane emission from paddy fields	2	4	L3
9	Mention the different phases of Indian Ocean Dipole (IOD) and their impacts	2	5	L2
10	What are the goals of India Cooling Action Plan (ICAP)?	2	5	L2

**PART - B(5x 13=65Marks)**

(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a) (i)	Write the differences between weather and climate. Briefly discuss the different weather parameters affecting climate of a region	5	1	L2
(ii)	Describe in detail the Köppen-Geiger Classification System	8	1	L2
<b>OR</b>				
11 (b)	Discuss in detail, the Global wind pattern and Indian monsoon	13	1	L2
12 (a)	Why are carbon pools important? Describe the different carbon reserves in the Earth. With neat schematics discuss the components of carbon cycle	13	2	L3
<b>OR</b>				

12 (b)	Why RCP emission scenarios are needed? Describe different RCPs and how they are different from SSPs?	13	2	L3
13 (a)	What are the main sources of Carbon dioxide? What is carbon capture and storage? Write notes on carbon capture and storage methods and associated challenges	13	3	L2
<b>OR</b>				
13 (b)	Discuss in detail the key themes of international climate negotiations	13	3	L2
14 (a)	Discuss the impacts on climate change on forest ecosystem. Write elaborately the methods adopted to measure the carbon sequestration potential of a tree	13	4	L3
<b>OR</b>				
14 (b)	Explain the climate change impacts on agriculture and the adaptation strategies	13	4	L3
15 (a)	Give a detailed explanation of the causes, implications, and mitigation strategies for climate extreme events	13	5	L4
<b>OR</b>				
15 (b)	Write in detail the nature-based solutions to protect the ecosystem	13	5	L4

**PART- C(1x 15=15Marks)**  
(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	What is meant by blue carbon? Why protecting blue carbon storage is crucial for fighting climate change? Describe the Nature based solutions or initiatives taken up by India to protect blue carbon reserves	15	4	L5

