



VIT

Vellore Institute of Technology
(Autonomous Institute for Higher Education and Research)

SCHOOL OF CIVIL ENGINEERING
CONTINUOUS ASSESSMENT TEST (CAT) – II
WINTER SEMESTER 2024-25

SLOT: D1+TD1

Reg No.:

Programme Name & Branch : B.Tech-Civil Engineering
Course Code : BCLE214L
Course Name : Global Warming
Faculty Name(s) : Dr. Murugavel S, Dr. Vaani N, Dr. Kavitha MS
Class Number(s) : VL2024250503727; VL2024250504589; VL20242505037
Exam Duration : 90 minutes
Maximum Marks: 50

General instruction(s):

- **Answer all Questions**

1. Elaborate in detail about how the primary factors which drive the global and regional climate changes influence the alterations in temperature patterns, trends in precipitation, and sea level rise.
2. How do temperature alterations in the atmosphere influence the rate of polar ice melt, and what are the cascading effects on global sea level rise and coastal ecosystems?
3. A rapidly growing urban city located in a semi-arid region is experiencing more frequent and severe droughts, coupled with occasional flash floods due to intense rainfall events. The city's water supply is highly dependent on a nearby river, which has been experiencing reduced flow due to prolonged dry periods. In light of the IPCC's projections for semi-arid regions, analyse how different global warming scenarios will impact the city's water supply, agricultural productivity, and overall resilience. Orient your discussion based on the key factors which will influence the projections under different scenarios.
4. A local government wants to develop a climate change adaptation plan to protect its community from the impacts of climate change. They have decided to use a climate model to simulate the potential impacts of climate change on the community infrastructure, economy, and public health.
 - a). Describe the type of climate model that would be most suitable for this scenario, and explain why.
 - b) What are the key parameters that the climate model should include to accurately simulate the impacts of climate change on the community?
 - c) How would you use the climate model output to develop a climate change adaptation plan that prioritizes the most vulnerable sectors and communities?
5. What are the most critical gaps in current climate models regarding the greenhouse effect's contribution to extreme weather events, and how can these gaps be addressed to enhance climate resilience strategies?
