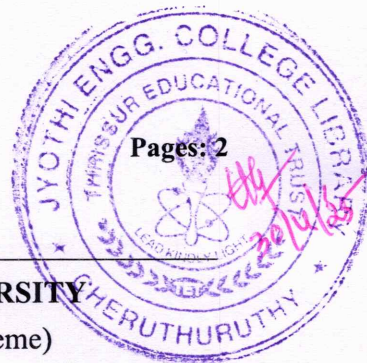


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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) Exam April 2025 (2019 Scheme)

Course Code: CET468

Course Name: CLIMATE CHANGE AND SUSTAINABILITY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | Define the term insolation and explain its influence on climate. | (3) |
| 2 | What is atmospheric stability? | (3) |
| 3 | Define carbon sequestration | (3) |
| 4 | What is carbon footprint? | (3) |
| 5 | What is urban sprawl and what are its main causes? | (3) |
| 6 | Define the concept of sustainable urbanization | (3) |
| 7 | What is a circular economy and how does it contribute to sustainable urban development? | (3) |
| 8 | Explain the role of green engineering in sustainable infrastructure development. | (3) |
| 9 | What is Sustainability Engineering? | (3) |
| 10 | Briefly explain the Clean Development Mechanism (CDM) | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

- | | | |
|----|---|-----|
| 11 | a) Discuss the formation and characteristics of cyclones and anticyclones | (6) |
| | b) Explain the composition and structure of the atmosphere and its significance in weather and climate studies. | (8) |

OR

- | | | |
|----|--|------|
| 12 | a) Discuss the factors influencing climate and explain their interrelationships. | (14) |
|----|--|------|

Module II

- | | | |
|----|---|-----|
| 13 | a) Explain the concept of the greenhouse effect and its role in global warming. | (6) |
| | b) Discuss the impact of climate change on water resources, particularly focusing on water availability and distribution. | (8) |

OR

- 14 a) Analyze the impact of climate change on agriculture and urban areas, highlighting specific challenges and suggesting possible adaptation strategies. (14)

Module III

- 15 a) Explain the concept of Urban Heat Islands (UHI) and discuss the causes and mitigation measures. (6)
- b) Discuss the impact of urban flooding on urban areas and the role of water conservation and ecological measures in mitigating these impacts (8)

OR

- 16 a) Analyze the 3R concept (Reduce, Reuse, Recycle) in the context of waste management and its application in sustainable cities (7)
- b) Explain the role of green energy in sustainable urbanization and how it contributes to reducing the carbon footprint of cities. (7)

Module IV

- 17 a) Describe the concept of climate-resilient infrastructure and discuss its importance in urban planning. (6)
- b) Explain how climate change impacts infrastructure planning and describe the adaptation strategies for building climate-resilient cities. (8)

OR

- 18 a) Explain the concept of adaptation strategies in the context of climate change and describe the importance of integrating these strategies into urban planning. (14)

Module V

- 19 a) Discuss the Kyoto Protocol mechanisms for reducing GHG emissions, focusing on Joint Implementation (JI) and Emission Trading (7)
- b) Discuss the role of emission trading in reducing global greenhouse gas emissions and its effectiveness under the Kyoto Protocol. (7)

OR

- 20 a) Evaluate case studies on climate change and climate change risk reduction, highlighting lessons learned and strategies that have been effective in mitigating climate impact (14)
