

Reg No.: _____

Name: _____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech Degree S3 (S,FE) (FT/WP/PT) Examination November/December 2025 (2019 Scheme)

Course Code: MCN201**Course Name: Sustainable Engineering**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions. Each question carries 3 marks*

Marks

- 1 Define sustainability. Write any three points substantiating the need of sustainability. (3)
- 2 Cite three points which shows the nexus between sustainable development and agricultural technology. (3)
- 3 Give any 3 examples of air pollutants and their effect on human health. (3)
- 4 What is the 3R concept in waste management? (3)
- 5 Define Biomimicking. Give one example (3)
- 6 Write briefly about ISO 14000 series. List any two ISO with its numbers and correct title (3)
- 7 Write three advantages and three disadvantages of tapping solar energy. (3)
- 8 Name and define any three methods by which biomass is converted into energy. (3)
- 9 What is sustainable habitat? List out three pillars of sustainable habitat. (3)
- 10 Define the term sustainable transport system. Write one example (3)

PART B*Answer any one full question from each module. Each question carries 14 marks***Module 1**

- 11 Describe any seven Millennium Development Goals with at least a target and indicator for each goal. (14)
- 12 a) Explain the three - pillar model of sustainability. (9)
- b) Write a short note on Clean Development Mechanism. (Write any 5 relevant points) (5)

Module 2

13 a) What is Global Warming Potential? What do you mean by the statement that Methane's GWP is 21? (7)

b) What do you mean by Ozone layer depletion? Write any two causes and four effects of Ozone layer depletion? (7)

14 a) Describe six main air pollutants and its effects. (9)

b) Explain the term carbon footprint. Write any two examples (5)

Module 3

15 a) What do you mean by Cradle – to – grave analysis? (4)

b) Explain the four stages of Life cycle Assessment with the aid of block diagrams. (10)

16 a) Explain with the aid of a diagram the difference between linear and a circular economy. (6)

b) Describe the concept of Industrial Symbiosis. (5)

c) Give three examples of Industrial Symbiosis. (3)

Module 4

17 Describe the basic concepts of conventional and non-conventional energy sources with three examples from each category. (14)

18 a) What is Small Hydro Power (SHP)? (4)

b) Discuss the advantages and disadvantages of SHP. (4)

c) Explain first, second and third generation biofuels. (6)

Module 5

19 a) Describe sustainable urbanisation. (8)

b) Write any six methods for increasing energy efficiency in buildings. (6)

20 a) Narrate the framework for sustainable cities. (6)

b) The current transportation sector is unsustainable and hence need to change to sustainable transportation systems. Describe any four harmful impacts of the current transportation sector, making it unsustainable. (8)
