

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)

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