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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S3 (R, S) / S3 (PT) (R, S) Examination December 2023 (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 | List any three Sustainable Development Goals | (3) |
| 2 | What do you mean by the concept of sustainable development? | (3) |
| 3 | Mention any three legal provisions for Environmental Protection | (3) |
| 4 | A few island nations including Maldives are on the verge of getting submerged in the ocean. How will you link this unfortunate phenomenon to greenhouse gases? | (3) |
| 5 | What do you mean by circular economy? | (3) |
| 6 | Why is it important to do Life Cycle Analysis for a product? | (3) |
| 7 | Do you think that it is necessary to focus more on non-conventional energy sources? Justify your answer. | (3) |
| 8 | Nuclear energy does not result in any greenhouse gas emissions. Is this fact alone is sufficient to consider it as a clean and sustainable energy source? | (3) |
| 9 | Explain your idea of a sustainable transportation. | (3) |
| 10 | Mention any three qualities that can be expected for a sustainable building material. | (3) |

PART B

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

Module 1

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|----|--|------|
| 11 | Government has recently banned Diesel Auto-rikshaws older than 15 years from the roads. Analyse this action by considering the three pillars of sustainable development. | (14) |
| 12 | There exists an unavoidable nexus between technology and sustainable engineering. Explain with any four examples. | (14) |

Module 2

- 13 (a) List any four water pollutants. (4)
(b) Explain in detail the ill effects of any five major water pollutants. (10)
- 14 (a) Explain the relationship between Zero Waste concept and the 3R concept. (5)
(b) How the Zero Waste concept and the 3R concept are interrelated? How are these concepts inevitable in Sustainable Development? (9)

Module 3

- 15 Explain ISO 14001:2015 framework and its benefits. (14)
- 16 Elaborate on the scope and goal of Life Cycle Assessment with an example. (14)

Module 4

- 17 As far as the present technological advancements are concerned, it is not practical to rely on non-conventional energy sources alone for an Industry. Do you agree with this? Provide arguments based on this statement with proper examples. (14)
- 18 Do and express a detailed comparison between conventional and non-conventional energy sources with examples for the same. (14)

Module 5

- 19 List and explain in detail any four methods to increase energy efficiency inside a building. (14)
- 20 Imagine a city with all the amenities including schools, industries, offices, recreational facilities, beaches etc. What are the different points that you will look into before calling it a sustainable city? (14)
