

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY****Third Semester B.Tech Degree Regular and Supplementary Examination December 2022 (2019 Scheme)****Course Code: MCN201****Course Name: Sustainable Engineering****Max. Marks: 100 Duration: 3 Hours (p. 1)****PART A****Answer all questions. Each question carries 3 marks**

- 1. What is the need for sustainability?**
- 2. Explain the nexus between technology and sustainable development.**
- 3. What are the causes of air pollution?**
- 4. What is greenhouse effect?**
- 5. What are the benefits of implementing environmental management system?**
- 6. Explain the term circular economy.**
- 7. Differentiate between first, second and third generation bio fuels.**
- 8. What are the disadvantages of small hydro power plants?**
- 9. What is meant by sustainable habitat?**
- 10. What are the harmful impacts of transportation sector on sustainability? (p. 1)**

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

- 11. (a) Explain clean development mechanism - 7 marks.**
- (b) Explain the concept of sustainable development - 7 marks.**

**12. (a) Write notes on social, environmental and economic sustainability concepts - 9 marks.**

**(b) What are the challenges for sustainable development? - 5 marks.**

### **Module 2**

**13. What are the various sources of solid waste? Explain methods of solid waste management and zero waste concept (14 marks).**

**14. Explain carbon footprint and ways to reduce your carbon footprint (14 marks). (p. 1)**

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### **Module 3**

**15. Write notes on life cycle analysis (14 marks).**

**16. Explain industrial ecology and industrial symbiosis (14 marks).**

### **Module 4**

**17. Explain conventional and non conventional energy sources (14 marks).**

**18. How can energy be derived from oceans? (14 marks).**

### **Module 5**

**19. Explain the concept of green engineering (14 marks).**

**20. Write notes on sustainable cities (14 marks). (p. 2)**