

Register Number:.....

M.E/M.TECH DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2018)

Third Semester

ENVIRONMENTAL ENGINEERING

P18EEE0001: Cleaner Production and Environmental Auditing

COURSE OUTCOMES

- CO1:** Provide applied knowledge and understanding of strategies and technologies for a cleaner industrial production and their legislation
- CO2:** Apply an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment
- CO3:** Plan and apply the concept of Cleaner Production
- CO4:** Incorporate the knowledge on Life Cycle Assessment and Environmental Auditing
- CO5:** Apply concepts of Cleaner Production technologies and Environmental Audit in Industrial projects

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Assertion (A): The development which can be maintained for a long time without CO1 [K₂]
undue damage to the environment is called sustainable development.
Reason (R): It provides economic wellbeing to the present and future generation.
- a) Both Assertion and Reason are true and R is the correct explanation of A b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion
- c) Assertion is true but Reason is false d) Assertion is false and Reason is true
2. The U.N. General Assembly constituted a Committee on Sustainability (CSD) in the CO1 [K₁]
year
- a) 1994 b) 1993
- c) 1995 d) 1992
3. The primary goal of environmental management is CO2 [K₁]
- a) Maximizing profit b) Protecting and preserving the environment

identified _____.

- a) Environment friendly vehicles b) Environment friendly machines
c) Environment friendly power source d) Environment friendly products
9. The life cycle assessment of a product is done keeping in mind mainly CO5 [K₁]
a) Manufacturing b) Packaging
c) Disposal d) Distribution
10. Select the correct sequence with reference to Environmental Management system CO5 [K₁]
i. Environmental policy
ii. Implementation and operation
iii. Checking and corrective action
iv. Management review
a) i, ii, iii, iv b) ii, iii, iv, i
c) ii, i, iii, iv d) iii, iv, ii, i

PART B (10 x 2 = 20 Marks)

11. Recall the Indicators of sustainability. CO1 [K₁]
12. Compare prevention and control of industrial pollution. CO1 [K₂]
13. Define Pollution Prevention. CO2 [K₁]
14. Show the pollution prevention hierarchy. CO2 [K₁]
15. Explain the concept of cleaner production. CO3 [K₂]
16. Outline the cleaner production financing initiatives in India. CO3 [K₂]
17. List the elements of life cycle assessment. CO4 [K₁]
18. Extend a note on Eco Labelling. CO4 [K₂]
19. Tell the benefits of environmental management system. CO5 [K₁]
20. Show the need for environmental audit in industries. CO5 [K₂]

PART C (10 x 5 = 50 Marks)

21. Explain the barriers to sustainability. CO1 [K₂]
22. Outline the environmental Policies and legislations towards cleaner production in India. CO1 [K₂]
23. Summarize the benefits of pollution prevention. CO2 [K₂]
24. Recall the source reduction techniques. CO2 [K₁]
25. Extend a note on environmental evaluation in cleaner production assessment. CO3 [K₂]
26. Identify the steps followed while conducting a waste audit. CO3 [K₃]

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| 27. Outline Life Cycle Costing. | CO4 | [K ₂] |
| 28. Summarize the benefits for organizations with environmental management systems certification. | CO4 | [K ₂] |
| 29. Analyze the stages of a product's life cycle. | CO5 | [K ₄] |
| 30. Classify the types of environmental audits. | CO5 | [K ₄] |

Answer any TWO Questions

PART D (2 x 10 = 20 Marks)

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| 31. Examine the methods and approaches used in implementation of industrial ecology policies in Indian firms. | CO1 | [K ₄] |
| 32. Analyze how raw material substitution can be considered as a strategy in preventing industrial pollution. | CO2 | [K ₄] |
| 33. Identify the key ways to implement a pollution prevention and cleaner production awareness plan. | CO3 | [K ₃] |
