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Question Paper Code	12554
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Eighth Semester

**Civil Engineering**

**20CEEL806 - LIFE CYCLE ASSESMENT**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

	Marks	K- Level	CO
1. Define “Cradle to Grave”.	2	K1	CO1
2. Which life-cycle stage includes recycling?	2	K1	CO1
3. What is ISO 14040? Why it is needed?	2	K1	CO2
4. Differentiate Impact categories and Impact Indicators.	2	K2	CO2
5. Infer the three pillars of sustainability.	2	K2	CO3
6. List down the environmental impacts of brick manufacturing.	2	K1	CO3
7. Define total initial embodied energy.	2	K1	CO4
8. What are the major energy consuming activities in the buildings?	2	K1	CO4
9. Name the onsite construction process and its phases.	2	K1	CO6
10. List out the any three major construction materials and its carbon emission range.	2	K1	CO6

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

11. a) Illustrate the Goal and scope defining in LCA and how it affects the LCA Process.	13	K2	CO1
<b>OR</b>			
b) Discuss the key steps and importance of Inventory analysis in LCA.	13	K2	CO1
12. a) Identify the list of LCA software tools available and its detailed application.	13	K3	CO2
<b>OR</b>			
b) Construct the life cycle inventory analysis Check list for a cement manufacturing Industry.	13	K3	CO2
13. a) Classify the types of sustainable indicators and explain in detail.	13	K2	CO3
<b>OR</b>			
b) Outline the parameters affecting the resources use in the building life cycle.	13	K2	CO3

*K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create*

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14. a) Explain the components of embodied energy of a building in detail with neat sketch. 13 K2 CO4

**OR**

b) Compare the embodied energy of conventional and alternative materials in building construction. 13 K2 CO4

15. a) Illustrate the various methods followed in estimating carbon footprint. 13 K2 CO6

**OR**

b) Discuss the various Green Building rating system followed in India and explain in detail. 13 K2 CO6

**PART - C (1× 15 = 15 Marks)**

16. a) Identify the indirect embodied energy use in building and its components. 15 K3 CO5

**OR**

b) Choose the various building energy conservation alternatives in LCA perceptive. 15 K3 CO5