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Question Paper Code : 51068

B.E/B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Seventh/Nineth Semester

Civil Engineering

OEN 751 — GREEN BUILDING DESIGN

(Common to : Aeronautical Engineering/Aerospace Engineering/Agriculture Engineering/Automobile Engineering/Biomedical Engineering/Computer Science and Engineering/Computer and Communication Engineering/Electronics and Communication Engineering/Electronics and Telecommunication Engineering/Geoinformatics Engineering/Industrial Engineering/Industrial Engineering and Management/Manufacturing Engineering/Marine Engineering/Material Science and Engineering/Mechanical Engineering/Mechanical Engineering (Sandwich)/Mechanical and Automation Engineering/Mechatronics Engineering/Medical Electronics/Petrochemical Engineering/Production Engineering/Robotics and Automation/Biotechnology/Chemical Engineering/Chemical and Electrochemical Engineering/Fashion Technology/Food Technology/Handloom and Textile Technology/ Information Technology/Petrochemical Technology/Petroleum Engineering/Pharmaceutical Technology/Textile Chemistry/Textile Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List down the factors considered in transportation energy for building materials.
2. What is embodied energy of building materials?
3. Categorize C and D waste.
4. Define Biomass.
5. Define Thermal comfort.
6. What is Heat Transfer co-efficient?
7. What is meant by passive solar?

8. What is PV Energy?
9. Define green composites.
10. Distinguish between grey water and black water.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the various production and environmental implications of buildings in detail.

Or

- (b) What are the major types of LCA? Explain them in detail.

12. (a) Explain the process of reusing demolished concrete.

Or

- (b) Explain the embodied energy of alternative materials.

13. (a) Explain the shading methods used to control Solar Heat on Buildings.

Or

- (b) Explain about the heat transfer characteristics of building materials.

14. (a) Explain the three forms of Solar Energy used for Buildings.

Or

- (b) Explain the building window orientation design for various climatic conditions.

15. (a) Explain the lifecycle of green composites.

Or

- (b) List down the application of green composites. Describe the benefits of grey water reuse.

PART C — (1 × 15 = 15 marks)

16. (a) Identify the practices, challenges and solutions of urban water development in developed countries.

Or

- (b) Compare embodied energy of conventional and alternative materials.