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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 91051

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Seventh / Nineth Semester

Aeronautical Engineering

OEN 751 — GREEN BUILDING DESIGN

(Common to : Aerospace Engineering/ Agriculture Engineering/ Automobile Engineering/Biomedical Engineering/Civil 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/Bio Technology/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. What are the carbon emissions of building?

2. State the principles of PAS2050.

3. What does C and D waste consist of?

4. Define sustainable building material.

5. Write down the equation to calculate the Indoor Operative Temperature (IOT).

6. What is natural ventilation?

7. Define PSD.

8. Which are the two main categories of solar power?

9. What are the benefits of grey water reuse?

10. Why do we need green composites?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the role of CO_2 is greenhouse effect and global warming.

Or

(b) What is embodied energy of a building material? Explain the various types of embodied energy in building materials.

12. (a) Explain the implications of building technologies on embodied energy for buildings with framed construction.

Or

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

13. (a) Explain the different methods to evaluate thermal comfort in buildings.

Or

(b) How does location influence the design of a building? Explain the significance of geographical locations in building materials.

14. (a) What is solar energy? Describe in detail how it is utilized for building heating and cooling.

Or

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

15. (a) Explain the methods of disposal of solid waste in detail.

Or

(b) (i) What are the five principles to achieve sustainable planning of housing? (6)

(ii) Write notes on green technology for water treatment. (7)

PART C — (1 × 15 = 15 marks)

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

Or

(b) Examine how incident solar heat varies with different latitudes.

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