Energy Conservation and Green Building (315316)

MSBTE Diploma · K-Scheme · Model Question Paper — Set B

Time: 3 Hours **Max. Marks: 70**

Instructions:

1. All questions are compulsory.
2. Answer each next main question on a new page.
3. Illustrate your answers with neat sketches wherever necessary.
4. Figures to the right indicate full marks.
5. Assume suitable data, if necessary.
6. Mobile phone, pager and any other electronic communication devices are not permissible in the examination hall.

Q.1 Attempt any FIVE of the following: **10**

a) State any two objectives of energy conservation.

b) Define green building and state any two of its salient features.

c) Enlist any four benefits of green building.

d) Give the meaning of ‘Indoor Environmental Quality’ (IEQ).

e) State any two characteristics of bamboo as a green building material.

f) State any two objectives of a green building audit.

g) State any two future trends in green building.

Q.2 Attempt any THREE of the following: **12**

a) Explain any four principles of green building.

b) Explain sustainable construction with reference to its environmental, economic and social dimensions.

c) Describe the concept of energy efficiency and energy conservation in green building.

d) Explain any four key provisions of the Energy Conservation Act, 2001.

Q.3 Attempt any THREE of the following: **12**

a) State the advantages and limitations of any four sustainable building materials.

b) Discuss the importance of HVAC system in the design and operation of a green building.

c) Explain the steps involved in planning an audit for a green building.

d) Explain different data collection methods used during a green building audit.

Q.4 Attempt any THREE of the following: **12**

a) Differentiate between GRIHA and IGBC rating systems on the basis of: i) Original development ii) Rating validity iii) Certification levels iv) Area of

assessment.

b) Explain the role of MNRE in promoting renewable energy in buildings.

c) Explain LEED criteria for operation and maintenance of existing buildings.

d) Explain the role of MEDA in energy conservation.

e) Apply the steps of green building audit to assess the water efficiency of a hospital building.

Q.5 Attempt any TWO of the following: **12**

a) Explain building envelope with a neat sketch and state its key components.

b) Explain roof-top rainwater harvesting with a neat sketch. Calculate the quantity of rainwater that can be harvested in a year from a hostel roof of 450 m^2 if the annual rainfall is 750 mm and the runoff coefficient is 0.85. For how many days will it meet the flushing and gardening demand of 60 students at 45 litres per student per day?

c) Design a sample checklist for auditing a green building.

Q.6 Attempt any TWO of the following: **12**

a) Explain the functions of Bureau of Energy Efficiency (BEE) and state its benefits in energy efficiency.

b) Explain how green building rating systems contribute to the long-term sustainability of a building.

c) Explain strategies for sustainable site design of a green building.

Note: This is a **model question paper prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in