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3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Use of Non-programmable Electronic Pocket Calculator is permissible.
(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **10**
- a) Define Green Building.
 - b) State any two objectives of Energy Conservation.
 - c) State any two benefits of Green building.
 - d) Define Indoor environmental Quality (IEQ).
 - e) Enlist any four green building materials.
 - f) State any two salient features of green building.
 - g) Define the term Green Building Audit.

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- 2. Attempt any THREE of the following: 12**
- a) Explain the role of green building in sustainable development.
 - b) Explain any four principles of green building.
 - c) Discuss the importance of HVAC system in design and operation of green building.
 - d) Explain any four salient features of the Energy Conservation Act, 2001.
- 3. Attempt any THREE of the following: 12**
- a) Discuss the characteristics of any four green building materials.
 - b) Explain the steps involved in planning an audit for a green building.
 - c) Explain different data collection methods used during an green building audit.
 - d) Describe the and concept of energy efficiency and conservation in green building.
- 4. Attempt any THREE of the following: 12**
- a) Apply the steps of green building audit to assess the energy efficiency of a local school building.
 - b) Differentiate between GRIHA and I6BC rating system on basis of:
 - i) Original development
 - ii) Rating validity
 - iii) Certification levels
 - iv) Area of assessment.
 - c) Explain the role of Ministry of New and Renewable Energy (MNRE).
 - d) Discuss the LEED criterias for green building certification.
 - e) Explain the role of MEDA in energy conservation.

5. Attempt any TWO of the following: 12

- a) Explain the principles of green building in design of residential apartment system.
- b) Suggest simple ways to improve energy efficiency at your home.
- c) Explain Building Envelope and state its key components.

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 the rating systems of green building contribute to long term sustainability of building.
 - c) Explain the need for conducting a green building audit in your school or college by applying the concept of sustainability.
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