

Seat No: \_\_\_\_\_

Enrollment No: \_\_\_\_\_

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech. Summer 2021 - 22 Examination**

**Semester: 8**

**Subject Code: 203104435**

**Subject Name: Green Sustainable Buildings**

**Date: 28/03/2022**

**Time: 10:30am to 1:00pm**

**Total Marks: 60**

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**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Objective Type Questions - (All are compulsory - Each of one mark)**

**(15)**

1. \_\_\_\_\_ is an evaluation tool that measures environmental performance of a building through its life cycle
  - a. Building commissioning
  - b. Energy analysis
  - c. Green building rating system
  - d. Lifecycle assessment
2. \_\_\_\_\_ is that part of an urban or a metropolitan area that is marked by remarkably high temperature as compared to its rural counterpart due to excessive human activity
  - a. Urban heat island
  - b. Indoor air quality
  - c. Daylighting
  - d. Night sky
3. \_\_\_\_\_ is termed as excessive brightness that causes visual discomfort
  - a. Glare
  - b. Sky glow
  - c. Clutter
  - d. Trespass
4. \_\_\_\_\_ is the analysis, documentation and testing of all mechanical and electrical systems within a building to achieve optimum performance as defined by the building's owner.
  - a. Building commissioning
  - b. Energy analysis
  - c. Energy efficiency
  - d. All of these
5. \_\_\_\_\_ is defined as, "contamination of soil by human and natural activities which may cause harmful effect on living organisms".
  - a. Storm water management
  - b. Soil pollution
  - c. Soil erosion
  - d. Water efficiency
6. \_\_\_\_\_ encompasses the conditions inside a building—air quality, lighting, thermal conditions, ergonomics and their effects on occupants or residents.
7. \_\_\_\_\_ is the process of applying water to the crops artificially to fulfil their water requirements.
8. \_\_\_\_\_ is the controlled admission of natural light, direct sunlight, and diffused-skylight into a building to reduce electric lighting and saving energy.
9. \_\_\_\_\_ are products that do not release significant pollutants into the indoor environment.
10. \_\_\_\_\_ is termed as bright, confusing and excessive groupings of light sources.
11. Give full form for GRIHA.
12. What is the term used for minimizing water wastage by measuring the amount of water required for a particular purpose and the amount of water used or delivered?
13. What term simply means using less energy to perform the same task – that is, eliminating energy waste?
14. What is the name of process for controlling the stormwater runoff that comes primarily from impervious surfaces like parking lots, driveways, and rooftops?

15. What is one word for: “Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs”?

**Q.2 Answer the following questions. (Attempt any three) (15)**

- A. What causes the heat island effect? How can we reduce the heat island effect?
- B. Discuss Life-cycle assessment.
- C. How can green building concept be applied with respect to Materials & Resources?
- D. Narrate different types of irrigation practiced for improving crop yield.

**Q.3 A. What is the importance of Green Buildings? Describe the fundamental principles of green buildings. (07)**

**B. Explain the six parameters for thermal comfort (08)**

OR

**B. List the various green building concepts and explain any three in detail. (08)**

**Q.4 A. State the principal steps involved for Energy usage analysis of buildings. (07)**

OR

**A. Explain source, effects and control for night sky pollution (07)**

**B. With the help of a neat sketch, explain wastewater treatment and its reuse (08)**