

**B.Voc. DEGREE EXAMINATION, NOVEMBER 2023**  
**SUSTAINABLE ENERGY MANAGEMENT**  
**FIFTH SEMESTER**

**COURSE : MAJOR CORE**  
**PAPER : GREEN BUILDING AND PASSIVE ARCHITECTURE**  
**SUBJECT CODE : 16VS/VM/PA56**  
**TIME : 3 HOURS** **MAX.MARKS:100**

**SECTION – A**

**ANSWER ALL QUESTIONS:**

**(20x1=20)**

**I CHOOSE THE CORRECT ANSWER:**

1. What is the primary goal for a green building?
  - a. To maximize the energy conception,
  - b. to build very beautiful architecture,
  - c. to use the non-renewable energy sources
  - d. to reduce the environmental impact on construction and operation.
  
2. What does GRIHA stand for?
  - a. Green Rating for the integral habitat assessment,
  - b. global rating for integral habitat advancement,
  - c. Green Residential infrastructure for housing agencies.
  - d. global rating for interior housing advancement.
  
3. Which of the following is the example for active solar system
  - a. South facing windows
  - b. solar water heaters
  - c. Trombe walls
  - d. Green roofs.
  
4. The objective of using glass windows instead of wooden windows
  - a. to increase the cooling rate
  - b. to increase the air quality
  - c. to increase the natural lightingd.
  - d. to remove the waste.
  
5. What is the purpose of using a cool roof
  - a. to generate electricity
  - b. to increase the heating inside the building
  - c. to decrease the cooling loads of the buildingd.
  - d.to decrease the use of water
  
6. \_\_\_\_\_ design refers to the use of the sun's energy for the heating and cooling of living spaces by exposure to the sun.
  - a. Active solar
  - b. Passive solar
  - c. Conceptual interior
  - d. Griha building
  
7. Green building \_\_\_\_\_ air quality and wellbeing of the occupants
  - a. increase
  - b. decreases
  - c. does nothing
  - d. inspire the
  
8. Which of the following is a disadvantage of green building?
  - a. Increases 15-20% cost as compared to normal building
  - b. Modern techniques are required
  - c. Experts technicians are required
  - d. All of the above

9. \_\_\_\_\_ means, any building characterized by zero net energy consumption and zero carbon emissions calculated over a period of time
- |                         |                            |
|-------------------------|----------------------------|
| a. Zero energy building | b. minimal energy building |
| c. efficient building   | d. heritage building       |
10. Minimum marks to get IGBC rating for a green building is
- |           |        |
|-----------|--------|
| a. 25%    | b. 33% |
| c. 47.75% | d. 50% |

## II FILL IN THE BLANKS:

11. \_\_\_\_\_ means using less energy to get the same output
12. Using high performance glass type windows \_\_\_\_\_ use of natural light.
13. Keeping windows such as South facing windows increases the use of passive \_\_\_\_\_ energy.
14. \_\_\_\_\_ building uses the locally available material to reduce the transport expenditure.
15. Green building \_\_\_\_\_ cooling loads thus by reducing the electricity needed.

## III. STATE TRUE OR FALSE

16. Green buildings have a positive impact on the well being of the occupants.
17. Geothermal heat pumps can be used in a green building for the purpose of space heating in a cool climate. .
18. Rainwater harvesting techniques used for the minimal use of electricity.
19. Solar Photovoltaic panels are used for reducing the water usage.
20. GRIHA rating is given for green buildings built in India only.

## SECTION – B

### ANSWER ANY FOUR QUESTIONS:

(4x10=40)

21. Discuss about typical energy flow in a building and brief the heat losses in a building.
22. How do Zero energy buildings be constructed? Explain.
23. Examine the advantages of water thermal storage wall Systems and justify the need for it.
24. Write a short note on solar cooling systems.
25. Explain the factors influencing thermal comfort.
26. What are the various Green materials you know? How can it be used in buildings?

## SECTION – C

### ANSWER ANY TWO QUESTIONS:

(2x20=40)

27. Discuss in detail about the concepts of energy efficient buildings.
28. Discuss the estimation of internal and external loads in detail and discuss the economic and social benefits of green building
29. Differentiate active and passive heating
30. Elaborate the green building rating system and tell how a building is rated under this rating system.

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