

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86**  
**(For candidates admitted during the academic year 2016–17 & thereafter)**

**SUBJECT CODE: 16VS/VM/PA56**

**B.Voc. DEGREE EXAMINATION, NOVEMBER 2018**  
**SUSTAINABLE ENERGY MANAGEMENT**  
**FIFTH SEMESTER**

**COURSE : MAJOR CORE**

**PAPER : GREEN BUILDING AND PASSIVE ARCHITECTURE**

**TIME : 3 HOURS**

**MAX.MARKS:100**

**SECTION – A**

**ANSWER ALL QUESTIONS:**

**(20x1=20)**

**I. Choose the correct answer:**

1. The appropriate relative humidity in most of the buildings ranges between  
(a) 20 to 30%                      (b) 30 to 35%                      (c) 40 to 60%                      (d) 70 to 80%
2. Thermal energy of building walls causes phase change materials to  
(a) solidify                      (b) melt                      (c) freeze                      (d) None of these
3. Thermal resistance of a building should be  
(a) low                      (b) medium                      (c) high                      (d) None of these
4. If  $T_{out} = T_{out,bal}$  then, there is a need of  
(a) cooling                      (b) heating                      (c) neither heating nor cooling                      (d) None of these
5. The overall energy utilisation of a building can be converted into a common term CO<sub>2</sub> emission or  
(a) Wh/m<sup>2</sup>                      (b) kWh/m<sup>2</sup>                      (c) kWh/m<sup>2</sup>a                      (d) kWh/ma
6. Thermal comfort temperature of human body independent of environmental temperature is  
(a) 24 °C                      (b) 37 °C                      (c) 48 °C                      (d) 73 °C
7. Which of these following is green materials  
(a) Bamboo                      (b) Cork                      (c) Wool insulation                      (d) All of the above
8. The combination of solar panels and heat pump provides  
(a) full scale heating in winter                      (b) air conditioning during summer  
(c) flexibility of heat generation                      (d) All of the above
9. The ideal temperature of hot water cylinder to kill bacteria is  
(a) 45 °C                      (b) 50 °C                      (c) 55 °C                      (d) 60 °C
10. Masonry means  
(a) wood work                      (b) stone work                      (c) iron work                      (d) None of these

**II. Fill in the blanks:**

11. Trombe walls can be made of materials such as \_\_\_\_\_.
12. The unit of heating degree days is \_\_\_\_\_.
13. Buildings loose heat to the surroundings by a combination of \_\_\_\_\_.
14. A space heater is used to heat \_\_\_\_\_.
15. Window film can allow nature light without negative impact of \_\_\_\_\_.

**III. Answer in a sentence or two:**

16. What is infiltration?
17. CFLs and LEDs are better than traditional incandescent light bulbs. Why?
18. What is sensible heat?
19. Expand LEED.
20. Define Green Building.

**SECTION – B****ANSWER ANY FOUR QUESTIONS:****(4X10=40)**

21. Write short notes on energy efficiency of a building and its importance.
22. Explain the energy flow inside a building.
23. Give an account on thermal storage wall.
24. Discuss the key features of a Green building.
25. What is IGBC rating system? Explain.
26. Discuss the different types of domestic solar water heaters?

**SECTION – C****ANSWER ANY TWO QUESTIONS:****(2x20=40)**

27. Explain how to calculate the cooling load of a building.
28. Describe the working of a direct and indirect gain passive heating system.
29. Discuss the factors influencing the thermal comfort.
30. Explain in detail the sizing, installation and maintenance of solar water heaters.

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