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

SUBJECT CODE: 16VS/VM/NM56

B.Voc. DEGREE EXAMINATION, NOVEMBER 2019
SUSTAINABLE ENERGY MANAGEMENT
FIFTH SEMESTER

COURSE : MAJOR CORE
PAPER : NOVEL MATERIALS FOR SUSTAINABILITY
TIME : 6 HOURS **MAX.MARKS:100**
(Theory: 50 marks + Practical: 50 marks)

SECTION – A

ANSWER ALL QUESTIONS: **(20x1=20)**

1. Define the sustainability of fuel.
2. What are the advantages of dendrimers?
3. List out any two importance of hydrogen as fuel.
4. Define a catalyst.
5. Mention any two advances in the field of thermoelectricals.
6. State Seeback effect.
7. What is OLED?
8. Write down the energy saving materials.
9. What do you mean by thermal doors?
10. What is a Low e-window?

CHOOSE THE CORRECT ANSWER:

11. Revolutionary materials refers to
    (a) metals (b) composites (c) carbon nanotubes (d) All of these
12. Super capacitors (SCs) are electrochemical energy ---------- devices
    (a) storage (b) charging (c) dielctric (d) None of these
13. A typical thermoelectric material should have
    (a) high electrical conductivity (b) low thermal conductivity
    (c) must maintain a temperature gradient (d) All of these
14. Zeolites are microporous, aluminosilicate minerals commonly used as .....
    (a) commercial adsorbents (b) catalysts
    (c) Ion exchangers (d) All of these
15. ..... a landscaping method developed especially for arid and semiarid climates that utilizes water - conserving techniques.
    (a) Cultivation (b) farming
    (c) Xeriscaping (d) pigmentation process

FILL IN THE BLANKS:

16. Carbon has _____ valence electrons.
17. DSSC stands for_____.
18. Thermoelectricity is the conversion between ----------and ----------.
19. LEDs are widely used as …….. devices.
20. Polyurethane is used in .....

..2

SECTION – B

ANSWER ANY SIX QUESTIONS: (6x3=18)

21. Write a note on Dendrimers.
22. Explain the impact of resource utilization.
23. What are the applications of novel materials in the field of environment?
24. Discuss the uses of titanium dioxide as catalyst.
25. Describe Peltier effect.
26. What are the properties of thermoelectric material?
27. What is meant by smart materials? Explain their properties.
28. Write short notes on Organic LEDs.
29. Explain the process of photo catalysis.
30. Why do we use composites?

SECTION – C

ANSWER ANY TWO QUESTIONS: (2x6=12)

31. Discuss carbon nanotubes and their applications.
32. Explain any one of the newer energy materials for renewable energy storage and conversion.
33. Discuss the applications of thermoelectric materials for heating and cooling applications.
34. Discuss importance of insulation and various insulation materials.

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