STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86

(For candidates admitted during the academic year 2016 – 2017& thereafter)

SUBJECT CODE: 16VS/VM/BE36

B.Voc. DEGREE EXAMINATION, NOVEMBER 2022

SUSTAINABLE ENERGY MANAGEMENT

THIRD SEMESTER

COURSE : MAJOR CORE

PAPER : BIO ENERGY

TIME : 6 HOURS **MAX.MARKS:100**

(Theory: 50 marks + Practical: 50 marks)

SECTION -A

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

I CHOOSE THE CORRECT ANSWER:

1. One of the type/s of biogas plants.
   (a) Deenabandhu (b) Stable bed (c) Fludized bed (d) fixed grate
2. The optimum temperature for biogas production is
   (a) 30-35 (b) 60 - 65 (c) >50 (d) >100
3. Biomass energy resource
   (a) Iron nail (b) construction waste (c) corn (d) All the above
4. Landfill gas contains
   (a) Methane (b) CO_2 (c) CO (d) All the above
5. The optimum C/N ratio for biogas production?
   (a) 20 – 35 (b) 60 - 100 (c) >50 (d) 100- 150

II FILL IN THE BLANKS:

6. ……. is an example of herbaceous biomass.
7. Moisture in biomass _____ the combustion of biomass.
8. ……. the polymer of glucose.
9. The …… component of wood is hard to digest in a biogas plant
10. The incombustible residue left after the complete combustion of biomass is ……
11. The nutrients are additional materials added to the slurry in the biogas plant digester.

III STATE WHETHER TRUE OR FALSE

12. Proximate Analysis estimates the percentage of carbon of a biomass.
13. Hydrocarbons have chains of carbon and nitrogen in their molecules.
14. Fast growing land based or aquatic crops having high energy density.
15. Rice straw has more moisture content than water melon.

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IV ANSWER ALL THE FOLLOWING :

16. What is a biogas?
17. What are Aquatic biomasses?
18. State the advantages of Deenabandhu model
19. Define methane fermentation.
20. State the names of raw biomass from waste and cultivated crops.

SECTION – B

ANSWER ANY SIX QUESTIONS: (6x3=18)

21. Explain the identification of biomass in the environment.
22. What is the significance of bioenergy?
23. Write a short note on proximate analysis.
24. Discuss the Classification of the Biomass resources
25. Draw an illustrated diagram of a updraught gasifier and name its parts.
26. Discuss different feed stocks for biogas production.
27. State about thermo chemical conversion of biomass
28. Write short notes on PRAGATI model of a biogas plant.
29. Write short notes on Fluidized bed gasifier.
30. Discuss Biogas scenario in India.

SECTION – C

ANSWER ANY TWO QUESTIONS: (2x6=12)

31. Write the energy route of the waste to electrical energy by incineration process. Write the applications of incineration process.
32. Explain in detail about the Landfill gas collection system with a neat schematic diagram.
33. Explain the importance of wood as a future source of energy
34. What are the advantages and disadvantages of floating dome type biogas plant model?

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