STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI- 86

(For candidates admitted during the academic year 2016–17 & thereafter)

SUBJECT CODE : 16VS/VM/AB46

B. Voc. DEGREE EXAMINATION, APRIL 2019

SUSTAINABLE ENERGY MANAGEMENT

FOURTH SEMESTER

REG. NO…….

COURSE : MAJOR CORE

PAPER : ADVANCED BIOENERGY (THEORY)

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

(Theory: 50marks +Practical: 50 marks)

SECTION – A

Answer all the questions: **(20x1 = 20)**

I. Choose the right Answer

1. The major nutrients of the slurry are

   a) MPK b) NPK c) NCK d) NSK

2. 1 Kg of cow dung will yield _____ m^3 of biogas.

   a) 0.4 b) 0.04 c) 0.004 d) 4

3. The amount of feedstock required for $3m^3$ biogas plant is_____.

   a) 25 b) 30 c) 50 d) 75

4. Which of the following is an INCORRECT statement?.

   a) CO is inflammable b) CO_2 is non-flammable.

   c) CH_4 is inflammable d) H_2 is non-flammable

5. The term used to indicate the digester content is

   a) compost b) feedstock c) slurry d) manure

6. The optimum pH level inside a biogas plant is_____.

   a) 4-5 b) 6.5-7.5 c) 8-9 d) None of the above

II. Fill in the Blanks

7. The electricity generated from biomass is called_____.

8. Methanol can be prepared from _____ and _____ process.

9. _____ and _____ are the flammable counterparts of the woodgas.

10. The symbol  denotes_____.

11. The ignition temperature of biogas is_____ than of diesel.

12. BOKASHI composting is used for _____ waste.

III. Answer in a line or two

13. Give examples of earthworms used in composting.

14. What is scrubber?

15. Expand PEG.

16. List two benefits of drop-in-fuels.

17. Define biopower

18. Define biofuel. List out their types.

19. What is slurry?

20. Give examples of genotoxic waste.

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SECTION – B

Answer any SIX questions: **(6x3=18)**

21. Write short notes on drop-in-fuels and list out their benefits
22. Explain in detail about the factors which affect the production of biogas
23. Write down the safety measures and maintenance of a biogas plant
24. Write short notes on infectious waste, sharps and pharmaceutical waste
25. Explain briefly about the phases involved in the conversion of biomass into biogas
26. Give an account on the different types of biomass stoves
27. Explain the methods involved in the purification of biogas
28. Explain in detail about the estimation of biogas plant capacity
29. Write short notes on Cryogenic separation
30. Write short notes on the different feed stocks for biogas plant

SECTION – C

Answer any TWO questions: **(2x6=12)**

31. What are IC engines? Explain the working of a dual fuel engine with biogas as a fuel
32. Discuss in detail about the impact of biogas on the public health and environment
33. Explain in detail about the uses of a biogas stove and mention its advantages and disadvantages
34. Explain the ways in which slurry can be utilized

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