

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI- 86
(For candidates admitted during the academic year 2016–2017& thereafter)

B. Voc. DEGREE EXAMINATION, APRIL 2024
SUSTAINABLE ENERGY MANAGEMENT
FOURTH SEMESTER

COURSE : MAJORCORE

PAPER : BIOFUEL CROPS AND BIOFUELS

SUBJECT CODE : 16VS/VM/BB46

TIME : 5 HOURS

MAX. MARKS : 100

(Theory: 50marks +Practical: 50 marks)

SECTION – A

ANSWER ALL QUESTIONS:

(20x1 = 20)

1. Bioenergy is the energy obtained from _____
 - (a) Coal
 - (b) Natural Gas
 - (c) Alcohol
 - (d) Biomass
2. Combustion that takes place at high speed is called
 - (a) Spontaneous burning
 - (b) Explosion
 - (c) Incomplete burning
 - (d) Rapid combustion
3. Which of the following symptoms shows that combustion is complete?
 - (a) presence of free carbon in exhaust
 - (b) presence of CO in exhaust
 - (c) presence of oxygen in exhaust
 - (d) presence of nitrogen in exhaust
4. Which of the following is a product of biomass gasification?
 - (a) Hydrogen
 - (b) Steel
 - (c) Carbon (solid)
 - (d) Iron
5. Bioethanol is subjected to rectification to remove,
 - (a) Sugar
 - (b) Enzymes
 - (c) Yeast
 - (d) Impurities
6. What chemical reaction makes biodiesel?
 - (a) Polymerization
 - (b) Transesterification
 - (c) Sublimation
 - (d) Fermentation
7. Which ingredients are needed to break down the sugar in a plant to make ethanol?
 - (a) Carbon dioxide/water
 - (b) Sunlight
 - (c) Bacteria/yeast
 - (d) Sodium/chlorine

8. _____ is called as the bio gas.
 - (a) Bio ethanol
 - (b) Bio methane
 - (c) Bio diesel
 - (d) Bio butanol
9. The production of bio ethanol is by fermenting the _____ and starch components.
10. With B20 biodiesel, what does the “20” indicate the percentage of _____.
11. Bioethanol is mixed with _____ to prepare transport fuel.
12. What are the different types of biofuel crops?
13. What are the keys to design a gasifier?
14. What is utilization of biomass?
15. List the oil seed crops for bio-diesel production.
16. How much biodiesel is produced from vegetable oil?
17. What are the storage conditions of biodiesel?
18. What are the different types of biodiesel?
19. What are the third generation biofuels?
20. What are the demerits of algae biodiesel?

SECTION – B

ANSWER ANY SIX QUESTIONS:

(6x3=18)

21. Why are vegetable oils important?
22. Write down the policy issues of biofuel.
23. Write short notes on principle of thermochemical conversion.
24. What are the types of scrubber?
25. Explain the characteristics of biodiesel.
26. Write a short note on post production process of biofuels.
27. Explain in detail about testing of biodiesel.
28. What are the by-products of bio-diesel?
29. Write the advantages of biorefinery materials.
30. How do you produce biodiesel from algae?

SECTION – C

ANSWER ANY TWO QUESTIONS:

(2x6=12)

31. Elaborate on principle of gasification and its types.
32. Explain the oil extraction process.
33. Describe the production process of bioethanol.
34. Give an account on cultivation practices of biofuel crops.
