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Question Paper Code: 57A01

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Seventh Semester

Agriculture Engineering

15UAG701 - BIO-ENERGY RESOURCE TECHNOLOGY

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The equipment used to determine the volatile content of fuel is ____ CO1- R
(a) Hot air oven (b) Muffle furnace
(c) Bomb calorimeter (d) Elemental analyser
2. About _____ kWh of electricity can be generated from 1000 kg of CO1- R
coal.
(a) 1460 (b) 2460 (c) 3460 (d) 5460
3. The dialysing time of haemodialysis is CO2- U
(a) Maltase (b) Invertase (c) Diastase (d) Zymase
4. Deenabandhu biogas plant is _____ type plant. CO2- R
(a) Fixed (b) Floating (c) Submerged (d) Horizontal
5. Thermal degradation of biomass in the absence of oxygen is called CO3- R

(a) Combustion (b) Gasification (c) Incineration (d) Pyrolysis
6. Daily requirement of biogas for cooking per person is _____ CO3- R
(a) 0.10 to 0.20 (b) 0.20 to 0.30 (c) 0.30 to 0.40 (d) 0.40 to 0.50
7. Cogeneration concept is not applicable to which type of industry? CO4- R
(a) Sugar (b) Paper and Pulp (c) Refractory (d) Refinery

8. ___ is a transportation fuel that can be produced from vegetable oil and animal fats CO4- R
 (a) Biogas (b) Bio oil (c) Bio-diesel (d) Bio-ethanol
9. Replacement of electric heaters by steam heaters is _____ CO5- R
 (a) Energy substitution (b) Energy conservation
 (c) Fuel substitution (d) Energy efficiency measure
10. A thermal insulator is an _____ CO5- R
 (a) Good conductor of heat and has high thermal conductivity
 (b) Poor conductor of heat and has high thermal conductivity
 (c) Good conductor of heat and has low thermal conductivity
 (d) Poor conductor of heat and has low thermal conductivity

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain in detail about the proximate and ultimate analysis of Biomass. CO1- U (8)
12. Explain the process and stages of ethanol production from sugary CO2 U (8)
 substrates? Write about the techniques to characterize the liquid fuel.
13. Describe in detail about fixed Dome and floating drum Biogas plants CO3- U (8)
 with neat sketch.
14. What is densification? What are all the factors affecting densification CO4- U (8)
 process? Explain about different methods of densification process with
 neat sketch?
15. Discuss in detail about cogeneration cycle in a sugar industry with CO5- U (8)
 example and neat sketches.

