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| **Question Paper Code: 57A01**    B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020  Seventh Semester  Agriculture Engineering  15UAG701 **-** BIO-ENERGY RESOURE 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 coal. | | | | | | | | | CO1- R | |
|  | (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 substrates? Write about the techniques to characterize the liquid fuel.** | | | | | | | | CO2 U | | (8) |
| 13. | **Describe in detail about fixed Dome and floating drum Biogas plants with neat sketch.** | | | | | | | | CO3- U | | (8) |
| 14. | What is densification? What are all the factors affecting densification process? Explain about different methods of densification process with neat sketch**?** | | | | | | | | CO4- U | | (8) |
| 15 | **Discuss in detail about cogeneration cycle in a sugar industry with example and neat sketches.** | | | | | | | | CO5- U | | (8) |