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MRW-006

**MASTER OF SCIENCE (RENEWABLE
ENERGY AND ENVIRONMENT)
(MSCRWEE)**

Term-End Examination

June, 2023

**MRW-006 : BIOENERGY CONVERSION AND ITS
UTILIZATION**

Time : 3 Hours

Maximum Marks : 70

Note : (i) Attempt any *five* questions.

(ii) All questions carry equal marks.

1. (a) Describe the degradation process of biomass. 7
- (b) Explain the significance of waste minimization of solid waste. 7
2. (a) Discuss the various measures to mitigate environmental effects due to incineration. 7
- (b) Describe the properties of enzymes. 7
3. (a) Describe the hydrothermal gasification process. 7
- (b) Enlist various processes of solvent extraction of hydrocarbons. Explain any one of them. 7

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4. (a) How is methane produced in Landfills ?
How could this methane be utilized to
produce energy ? 7
- (b) Explain the process for production of
biodiesel. 7
5. Distinguish between any *four* of the following :
4×3.5=14
- (a) Fast pyrolysis and Slow pyrolysis
- (b) Absorption and Adsorption.
- (c) Mesophilic and Thermophilic.
- (d) Plug flow digester and High rate digester.
- (e) Biochemical Oxygen Demand (BOD) and
Chemical Oxygen Demand (COD)
- (f) Higher heating value and Lower heating
value
6. (a) What are the essential qualities of the fuel
for a SI engine ? 7
- (b) Enlist the various process parameters
which affect the biogas production. 7
7. Write short notes on any *two* of the following :
7+7=14
- (a) Hydrogen production
- (b) Objectives of green hydrogen mission
- (c) Production of butanol
- (d) Floating drum biogas digestors

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