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MRW-006

**Master of Science (Renewable Energy
and Environment) (MSCRWEE)**

Term-End Examination

June, 2024

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

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any **five** questions. All questions carry equal marks.

1. (a) Describe the biodegradability property of biomass and explain the degradation method of any one polymer. 7
- (b) Describe the different sources of solid waste.
2. (a) Explain the various thermal waste treatment techniques. 7

- (b) Explain the characteristics and sources of lipid in detail. 7
3. (a) Identify various biochemical methods of biomass conversion. Explain any one of them in detail with neat sketch. 7
- (b) Explain the processes of production of biodiesel.
4. (a) Elaborate the biochemistry of methanogenesis process. 7
- (b) Discuss the important of computer coupled bioreactors. 7
5. (a) What is the present Global status of liquid biofuels ? Explain in detail. 7
- (b) Explain the construction and working of fixed dome biogas digestors with a neat sketch.
6. (a) How hydrogen is produced using steam Reforming Process ? 7
- (b) Discuss the policies related to distribution and marketing of biofuels. 7

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7. Write short notes on any four of the following :

$$4 \times 3.5 = 14$$

- (a) National Biogas and Manure production program (NBMMP).
- (b) Torrefaction.
- (c) Cellulose-based ethanol production.
- (d) Environmental effects of biomass.
- (e) Fluidized bed combustion system.
- (f) Composter.
