

Roll No.

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M.Tech. (EE) EL-IV/ECE (2018 Batch)/
M.Tech. (Food Technology)/(Power System) (Sem.-3)

WASTE TO ENERGY

Subject Code : MTOE-301F-18

M.Code : 76548

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1. a) Explain the significance of energy from waste. (4)
b) Differentiate between **any two** of the following : (2 × 4)
 - i. Agro based waste and industrial waste
 - ii. Slow pyrolysis and fast pyrolysis
 - iii. Downdraft and updraft gasifiers
2. a) What do you understand by pyrolysis? (4)
b) Write a note on **any two** of the following : (2 × 4)
 - i. Manufacture of pyrolytic oils and gases
 - ii. Fluidized bed gasifiers
 - iii. Biomass stoves
3. What are gasifiers? Explain the types of gasifiers in detail. (12)
4. Write in detail about gasifier burner arrangement for thermal heating. (12)
5. a) Give the classification of biomass resources. (6)
b) What are the equilibrium and kinetic consideration in a gasifier operation? (6)

6. Describe the design and constructional features of Bio energy system. (12)
7. Write in detail about the following :
- a) Biomass conversion processes (4)
 - b) Pyrolysis and liquefaction (4)
 - c) Alcohol production from biomass (4)
8. Comment on the following :
- a) Urban waste to energy conversion (2)
 - b) Can domestic level biogas plant be installed indoor in cold urban area? (2)
 - c) Anaerobic digestion (2)
 - d) Sources of biogas generation (2)
 - e) Will replacing all plastic packaging with their biodegradable substitutes can solve the problem of waste generation? (2)
 - f) Is there an efficient method for “Waste to Energy” approach to take care of MSW with high moisture content and low calorific value? (2)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.