



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code :**Waste to Energy(19EE2128)    **Course & Branch:** M.Tech – SE,TE,VLSI,ES,PE & CSE  
**Year & Sem:** II-M.Tech & I-Sem

**UNIT –I**

**Question Bank**

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|--|-----|----------|
| 1. Explain classification of waste – in detail                               | 12M | [L1,CO1] |
| 2. Discuss Agro based waste briefly  | 12M | [L1,CO1] |
| 3. Discuss Forest residue briefly  | 12M | [L1,CO1] |
| 4. Explain the importance of Industrial waste utilization with neat sketches | 12M | [L2,CO1] |
| 5. What is MSW ? Explain different types of MSW                              | 12M | [L1,CO2] |
| 6. Write short notes on conversion devices wrt waste management              |     |          |
| 7. (a)Define incinerator?  | 03M | [L1,CO1] |
| (b) Explain the following incineratos briefly                                |     |          |
| (i) Moving Grate (ii) Fixed Grate (iii) Rotary Kiln                          | 09M | [L1,CO1] |
| 8. Explain the following gasifies with neat sketches                         |     |          |
| (i) Updraft (ii) Down draft gasifier   | 12M | [L1,CO1] |
| 9. List out advantages of gasification over incineration                     | 12M | [L1,CO1] |
| 10. Explain various types of digestors for waste management briefly          | 12M | [L1,CO1] |

UNIT –II**Question Bank**

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|---|---------------------------|
| 1. Explain the process of pyrolysis – in detail                                       | 12M [L2,CO2]              |
| 2. What are the various types of pyrolysis? Comparison between methods                | 12M [L1,CO2]              |
| 3. Discuss Slow and Fast Pyrolysis methods  | 12M [L1,CO2]              |
| 4. Write short notes on charcoal  | 12M [L2,CO2]              |
| 5. Explain the following types of charcoal production processes                       |                           |
| (i) Earth kiln              (ii) Brick kiln              (iii) Metal kiln    [ 4+4+4] | 12M [L2,CO2]              |
| 6. List out applications of Charcoal in various domains                               | 12M [L3,CO2]              |
| 7. (a) Define pyrolytic oil?  | 3M[L2,CO2]                |
| (b) Explain the manufacturing process of pyrolytic oils briefly                       | 9M [L2,CO2]               |
| 8. Discuss various applications and yields of pyrolytic oils – in detail              | 12M [L2,CO2]              |
| 9. (a) Define Syngas ? how syngas is produced.  | 4M [L1,CO2]               |
| (b) Mention primary applications of Syngas in various engineering fields              | 8M [L2,CO2]               |
| 10. Write short notes on  |                           |
| (i) Charcoal  |                           |
| (ii) Pyrolytic oils   |                           |
| (iii) Pyrolytic gases   | [4+4+4]      12M [L2,CO2] |

**UNIT-III****Question Bank – Unit - III**

1. Define gasifier. Classify various types of gasifiers. 12M [ L1,CO3]
2. Explain the design, construction and operation of Downdraft gasifier. 12M [ L2,CO3]
3. Explain the design, construction and operation of updraft gasifier. 12M [ L2,CO3]
4. Explain the design, construction and operation of fluidized bed gasifier. 12M [ L2,CO3]
5. Explain Gasifier burner arrangement for thermal heating in detail. 12M [ L3,CO3]
6. Draw Gasifier engine arrangement for production of Electric power and explain the methodology. 12M [ L3,CO3]
7. Discuss the following
  - (i) Equilibrium (ii) Kinetic considerations of gasifier in detail [ 3+9] 12M [L1,CO3]
8. Write short notes on
  - (i) Downdraft (ii) Updraft gasifiers [ 6+6] 12M[ L1,CO3]
9. Write short notes on
  - (i) Fluidized bed (ii) Downdraft gasifier [ 6+6] 12M[ L2,CO3]
10. How gasifier output is utilized in Electrical Power Plants – Justify 12M [ L2, CO3]

**UNIT-IV****Question Bank – Unit – IV**

1. Write Short notes on Biomass stoves 12M [L1,CO4]
2. Explain Design, Construction and Operation of Fixed bed combustor 12M [L2,CO4]
3. Explain Design, Construction and Operation of Inclined Grate Combustor 12M[L3,CO4]
4. Explain Design, Construction and Operation of Fluidized bed Combustor 12M[L1,CO4]
5. Briefly discuss various types of Combustors 12M[L2,CO4]
6. Explain the operation of Fixed bed combustor with neat sketches 12M[L2,CO4]
7. Explain the operation of Inclined Grate Combustors 12M[L1,CO4]
8. Explain the operation of Fluidized bed combustor with neat sketches. 12M[L1,CO5]
9. What is meant by exotic design of Biomass Stove? Explain in detail 12M[L2,CO5]
10. Compare the following combustors wrt operational and constructional features.  

(i) Fixed bed	(ii) Inclined Grate	(iii) Fluidized bed [ 4+4+4]
12M [ L1,CO4]		

## UNIT-V

## Question Bank – Unit – V

1. Explain Design, Constructional features of Biogas Plant Technology 12M [L1,CO5]
2. What is meant by Biomass resources? Classify based on their application. 12M [L1,CO6]
3. Discuss Biomass conversion processes 12M[ L2,CO6]
4. Write short notes on
  - (i) Thermo Chemical Conversion (ii) Direct combustion of Biomass

[6+6] 12M[L2,CO5]
5. (a) Classify Biogas plants 6M
  - (b) List out applications of biogas plants 6M 12M[L1,CO5]
6. Explain the following in detail
  - (i) Biomass gasification (ii) Pyrolysis & Liquefaction [6+6] 12M[L2,CO6]
7. Explain Alcohol production from Biomass 12M[L2,CO6]
8. Write short notes on
  - (i) Urban Waste to Energy Conversion
  - (ii) Biomass Energy Programme [6+6] 12M[L2,CO6]
9. Explain the following in detail wrt biomass plants
  - (i) Bio-Chemical Conversion (ii) Anaerobic digestion [6+6] 12M[L2,CO5]
10. Explain Bio-diesel production in detail 12M[L1,CO5]