

Centre for Energy Studies

BIOCONVERSION & PROCESSING OF WASTES, ESL-732

Time : 1 hr.

(Minor Test)

MM : 20

Attempt all questions

1. a) Describe the following :
 - i) Hammer mill (2)
 - ii) Zigzag air classifier (2)
 - b) Write a brief note on 'chemicals from cellulose' (2)
 - c) PAR and Pigment play important role in 'Photosynthesis'. Justify. (3)
2. Give reasons for the following : (5)
 - i) No binder is needed in briquetting of biomass when high pressure is applied
 - ii) Densified biomass has more calorific value and is safe to store.
 - iii) Fixed carbon is not the total carbon content of biomass
 - iv) Both starch and cellulose are polysaccharides of 6 carbon sugar, but they differ in chemical properties.
 - v) Ash determination is done in presence of air, whereas volatile matter determination is done in absence of air.
3. A sample of air-dried solid waste with 2.6 % moisture content and 12% ash content shows (experimentally determined values) (% by wt.):

Hydrogen = 4.7 and Oxygen = 12.7. Calculate : % Hydrogen and % Oxygen on dry ash free basis. (6)

Hammer