

Name:

Matric no:

Question 1

Estimate the energy content of solid waste sample with following composition.
What is the content on a dry basis if the moisture content of the waste is 21.8%
(based on 100kg sample of waste)

Component	Percent by mass, %
Food waste	30
Paper	40
Cardboard	8
Plastics	22

Table 10-7 Typical data on inert residue and energy content of municipal solid wastes

Component	Inert residue,* percent		Energy, † kJ/kg	
	Range	Typical	Range	Typical
Food wastes	2-8	5	3,500-7,000	4,650
Paper	4-8	6	11,600-18,600	16,750
Cardboard	3-6	5	13,950-17,450	16,300
Plastics	6-20	10	27,900-37,200	32,600
Textiles	2-4	2.5	15,100-18,600	17,450
Rubber	8-20	10	20,900-27,900	23,250
Leather	8-20	10	15,100-19,800	17,450
Garden trimmings	2-6	4.5	2,300-18,600	6,500
Wood	0.6-2	1.5	17,450-19,800	18,600
Misc. organics	2-8	6	11,000-26,000	18,000
Glass	96-99†	98	100-250	150
Tin cans	96-99+	98	250-1,200	700
Nonferrous metals	90-99+	96		
Ferrous metals	94-99+	98	250-1,200	700
Dirt, ashes, brick, etc.	60-80	70	2,300-11,650	7,000
Municipal solid wastes			9,300-12,800	10,500

* After combustion.

† As-discarded basis.