MINOR-II (October2013)

CHL 133- POWDER PROCESSING AND TECHNOLOGY

(Answer all questions) **time: 1 hr.**

[List any assumptions made]

1. It was observed that the product size from Hammer mill obtained was coarser than expected. The finer product can be obtained by the following
   a) Increasing the weight of Hammer
   b) Increasing the rpm of hammer
   c) Increasing the number of hammers
   Explain what will be effect on breakage and selection of particles for the three above conditions

2. A ball study for grinding 1.5 tons of material of 80% below 5mm for 4 hrs 300 kwh energy was consumed to produced size 80% below 63 microns.
   It is desired to buy a new large Ball Mill to grind large quantity of material in 4 hours. → 18 tons
   Estimate size of ball mill, diameter and length (take L/D =2). Find amount of balls in tons to be added for ball loading of 45% when Ball size is 25mm and density of Ball material is 4500Kg/cu.m. Estimate of amount of material in Tons that can be ground if material loading is 1.2 and density of material is 3200Kg./cu.m. Calculate the H.P. motor to be connected to the Ball Mill.

3. Write brief not on the following of Long problem selected
   a) Title
   b) Introduction
   c) work done
   d) future work
   e) reason for selection of problem

4. Compare Roll crusher, Roll Press and toothed crusher with reference to angle of nip, shape of particle, reduction ratio

5. Write short notes on the following;
   a) Compare repose density and bulk density
   b) Angle of repose and Hausner ratio
   c) Catarating, centrifuging, slipping in Ball Bill Operation