# Veer Surendra Sai University of Technology <br> Department of Chemical Engineering <br> Mid Term Examination, March-2017 <br> $4^{\text {th }}$ Semester, B.Tech. Chemical Engineering 

Sub: Process \&Handling of Materials
Max. Marks: 20
Time: 2Hrs.
Note: Answer Q. No. 1 which is compulsory and any three from the rest. Make suitable assumptions, if necessary.

| Q. No. | (a) Find the shape factor of a particle in the shape of a cuboid having L: B:H in the <br> ratio $1: 2: 3$. | Marks |
| :--- | :--- | :--- |
| (b) Why sphere is taken as reference shape to define sphericity of a non-spherical |  |  |
| particle? |  |  |$\quad$| (c) Explain with examples how particle shape and size effects particle properties. |
| :--- |
| (d) (i)What are the different forces employed in size reduction equipments? |
| (ii) Why more power is required to grind finer particles than coarser particles? |
| (e) Why average particle size concept is used to represent the size of a particle used |
| in screening? Explain the terms oversize and undersize used in screening. |$\quad$.


| Mesh No | \% Feed retained | \% Oversize retained | \% Undersize <br> retained |
| :--- | :--- | :--- | :--- |
| $-3+4$ | 1.07 | 1.8 | 0 |
| $-4+6$ | 2.35 | 3.3 | 0 |
| $-6+8$ | 6.72 | 8.8 | 0 |
| $-8+10$ | 8.64 | 11.2 | 0 |
| $-10+14$ | 10.87 | 14.2 | 0 |
| $-14+20$ | 17.59 | 22.9 | 0 |
| $-20+28$ | 13.97 | 18.20 | 0 |
| $-28+35$ | 10.77 | 10.4 | 11.95 |
| $-35+48$ | 10.13 | 6.5 | 21.98 |
| $-48+65$ | 7.46 | 2.5 | 23.91 |
| $-65+100$ | 5.01 | 0.2 | 18.77 |
| $-100+150$ | 3.3 | 0 | 14.27 |
| $-150+200$ | 2.12 | 0 | 9.12 |

