Assessment 3

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) This rock is in a quarrying crater. The feed is nearly spherical in each. The differential screen analysis of the material produces the results given in Table 1. By reducing the percentage between the crushing head and the cone, the differential screen analysis of the reduced product becomes that given in second grade (2) in Table 1. Using the broken method, estimate the work necessary per ton of the rock in the first grade. The size index is given as 32.167. The screen opening size is given in Table 2.

Table 1: Screen opening size data

<table>
<thead>
<tr>
<th>Mesh</th>
<th>1.000</th>
<th>0.325</th>
<th>0.160</th>
<th>0.080</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.450</td>
<td>0.550</td>
<td>0.650</td>
<td>0.750</td>
</tr>
</tbody>
</table>

2) For the data given in question 1, what is the work necessary per ton of the rock in the second grade?

3) 24 hours is to be supplied to a machine crushing material at the rate of 8.5 t/h from 12.5 mm particle size to a product having following sizes: 10% 9.5, 15% 9.0, 15% 8.5, 40% 8.0, 10% 7.5, 10% 7.0. The distribution is on the basis of mass. What is the work index of the machine?

4) A material is crushed in a Blake jaw crusher such that the average size of particles is reduced from 100 mm to 50 mm with consumption of energy. 10% 9.1, 15% 9.0, 15% 8.5, 40% 8.0, 10% 7.5, 10% 7.0. What would be the consumption of energy needed to crush the same material of average size 100 mm to an average size 50 mm if it takes 10 KWh to crush a t/m of rock to 50 mm size?

5) A material is crushed in a Blake jaw crusher such that the average size of particles is reduced from 100 mm to 50 mm with consumption of energy. 10% 9.1, 15% 9.0, 15% 8.5, 40% 8.0, 10% 7.5, 10% 7.0. What would be the consumption of energy needed to crush the same material of average size 150 mm to an average size 50 mm if it takes 10 KWh to crush a t/m of rock to 50 mm size?

6) A ball mill 1.2 m in diameter is being run at 6 L/s to grind iron ore. It is found that the mill is not working satisfactorily for a required size reduction operation because actual rotational speed of the mill is much larger than the critical speed of the mill. What is the critical speed of the mill in m/s?

7) A ball mill 1.2 m in diameter is being run at 6 L/s and it is found that the mill is not working satisfactorily for a required size reduction operation because actual rotational speed of the mill is much larger than the critical speed of the mill. What is the actual speed of the mill in m/s?