CE417 Construction Methods and Equipments

Homework, chapter # 4

Student name (in Arabic)  
Student number  
Lecture Time / Section  
Serial number in the Class  

<table>
<thead>
<tr>
<th>Date of Issue</th>
<th>26 / 12 / 1430</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Submission</td>
<td>04 / 01 / 1431</td>
</tr>
</tbody>
</table>

Please Note:
Submission must be neat and clean on A4 size paper.
Student must do his homework independently.
Question # 1

A wheel tractor scraper whose weight on the driving wheels is 38720 lb (17563 kg) has a gross weight of 70400 lb (31933 kg). If the load surface is dry earth having a rolling resistance factor of 100 lb/ton (50kg/t), what is the maximum grade the scraper could ascend?

Ans.: 30.8%

________________________

Solution:
Question # 2

The load growth data for a scraper is given below. The scraper’s total cycle time minus load time is 3.5 min. Find the scraper’s optimum load time.

<table>
<thead>
<tr>
<th>Load time min.</th>
<th>0.2</th>
<th>0.4</th>
<th>0.6</th>
<th>0.8</th>
<th>1.0</th>
<th>1.2</th>
<th>1.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average BCY</td>
<td>10.8</td>
<td>17.8</td>
<td>21.6</td>
<td>23.6</td>
<td>24.8</td>
<td>25.5</td>
<td>25.8</td>
</tr>
</tbody>
</table>

Ans.: ≈ 0.75 min.

Solution: