

**King Saud University
College of Engineering
Department of Civil Engineering**



CE417 Construction Methods and Equipments

Homework, chapter # 4

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

Date of Issue	26 / 12 / 1430
Date of Submission	04 / 01 / 1431

Please Note:

Submission must be neat and clean on A4 size paper.
Student must do his homework independently.

<i>Student name</i>		<i>Student number (university)</i>	
<i>Lecture time</i>		<i>Serial number in the class</i>	

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:

Student name		Student number (university)	
Lecture time		Serial number in the class	

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.

Load time min.	0.2	0.4	0.6	0.8	1.0	1.2	1.4
Average BCY	10.8	17.8	21.6	23.6	24.8	25.5	25.8

Ans.: ≈ 0.75 min.

Solution: