

King Mongkut's University of Technology Thonburi



Final Examination Semester 1 Academic Year 2012

CVE 474 Sustainable Transportation
Date: December 6, 2012

4th Year International Program in Civil Engineering
Time 13:00 – 16:00

Instructions :

1. There are 8 questions, 9 pages (80 points). 10 points for each question.
2. Attempt all questions.
3. Textbooks, dictionaries and any written materials are not allowed in the examination room.
4. Calculator is allowed under the university regulation.
5. This examination is complete. If it is believed to have any further specific parameters, write down that information in your answer as well as the relevant reasons.

Examiner : Assoc. Prof. Dr. Viroat Srisurapanon
Tel. 9147

This examination paper has been approved by the Department of Civil Engineering.

A handwritten signature in black ink, appearing to read 'Chai', is written over a horizontal dashed line.

Professor Dr. Chai Jaturapitakkul
Head of the Civil Engineering Department

Name _____ ID _____ Seat No. _____

1. How does the 'Urban Sprawl' effect to traffic congestion?

Recommend the ways to compromise with this problem.

Name _____ ID _____ Seat No. _____

2. What is the concept of 'Cash Out Program'?

How is the program applied to KMUTT?

Name _____ ID _____ Seat No. _____

3. What is the concept of 'Road Pricing'?

How can it solve traffic congestion?

Name _____ ID _____ Seat No. _____

4. Explain how to apply the intelligent transportation system (ITS) to the taxi management system?

What are the major benefits of this application?

Name _____ ID _____ Seat No. _____

5. Analyze the impacts of the construction of mass rapid transit (MRT) by using the benefit incident matrix (BIM). Use the alphabets, a, b, c, ... for each impact and identify the agencies affected by each impact.

Name _____ ID _____ Seat No. _____

6. What are the reasons to support bicycling system?

Explain each reason.

Name _____ ID _____ Seat No. _____

7. Prioritize the 4 modes: taxis, bicycles, public transits, and private cars for the design of intermodal terminals.
Draw the plan of the necessary facilities to fit these 4 modes into the central railway station.

Name _____ ID _____ Seat No. _____

8. What are the energy intensities of a vanpool with eight riders (including the driver) and a car pool with three riders plus the driver? The fuel economy for the van is that of a medium size SUV at 20.3 mpg and the automobile is a midsize car at 28.7 mpg. Both types use gasoline which has gross heat content 125,000 BTU per gallon.