

**PRINCE OF SONGKLA UNIVERSITY**

**FACULTY OF ENGINEERING**

**Midterm Examination : Semester I**

**Academic Year : 2009**

**Date : July 31, 2009**

**Time : 09:00 – 12:00**

**Subject : 225 - 343 Production Management and Optimization**

**Room : R300**

ทูลจรตในกาการสอบ โทษขัันต่ำปรับตคในรายวิชาขััน และพัทการเรยยน 1 ภาคการศีกษา

**Directions**

1. The following materials can be led into examination room: notes, textbooks, electronic handheld calculator, and dictionary.
2. You have to answers ALL questions.
3. You have to fill your name and ID on this page and fill only ID on the top-right corner of the remaining pages.
4. There are eight pages (this page is included), five problems with 40 points.

ภาษาไทย ตั้วบรรจง

First name Mr./Miss ..... Last name .....

Student ID .....

Problem no.	Points	Your scores
1	10	
2	10	
3	5	
4	5	
5	10	
	40	

\*\*\*\*\* Asst. Prof. Charoen Jaitwijitra \*\*\*\*\*

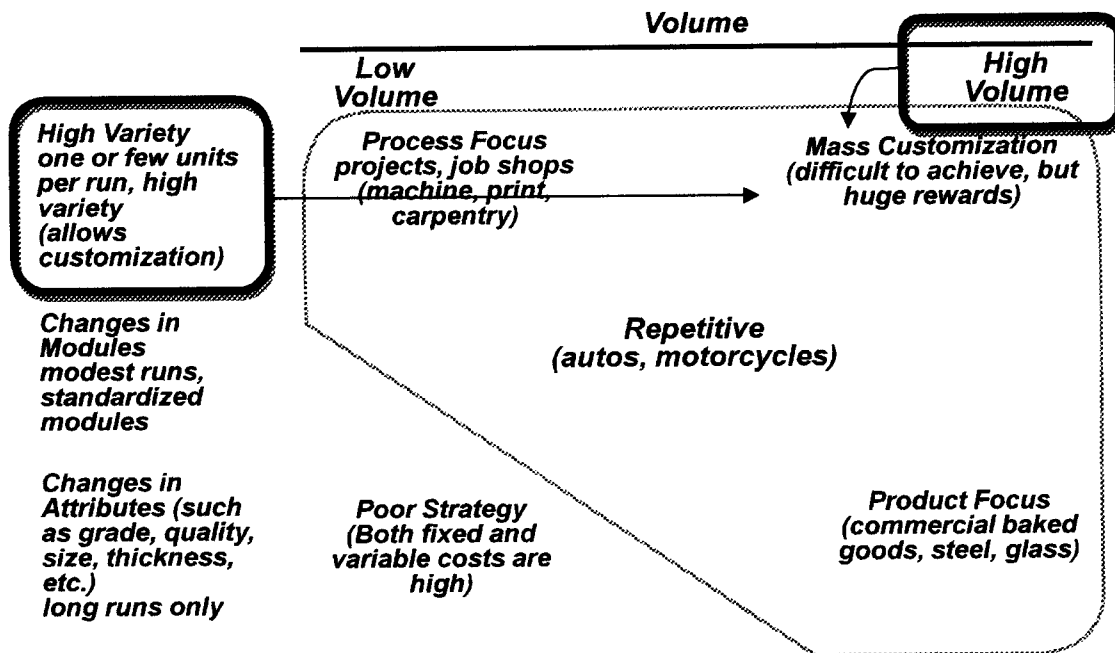


Name (ภาษาไทย).....

Read the problems carefully and write answers in the specified areas under each problem. Don't forget to answer all questions of each problem.

1. ( 10 points ) Describe the meaning of "Mass Customization" and show example of Thai products which are arranged to this type of process strategy. Also describe the "Poor Strategy" as you seen in the figure below.

## Process, Volume, and Variety



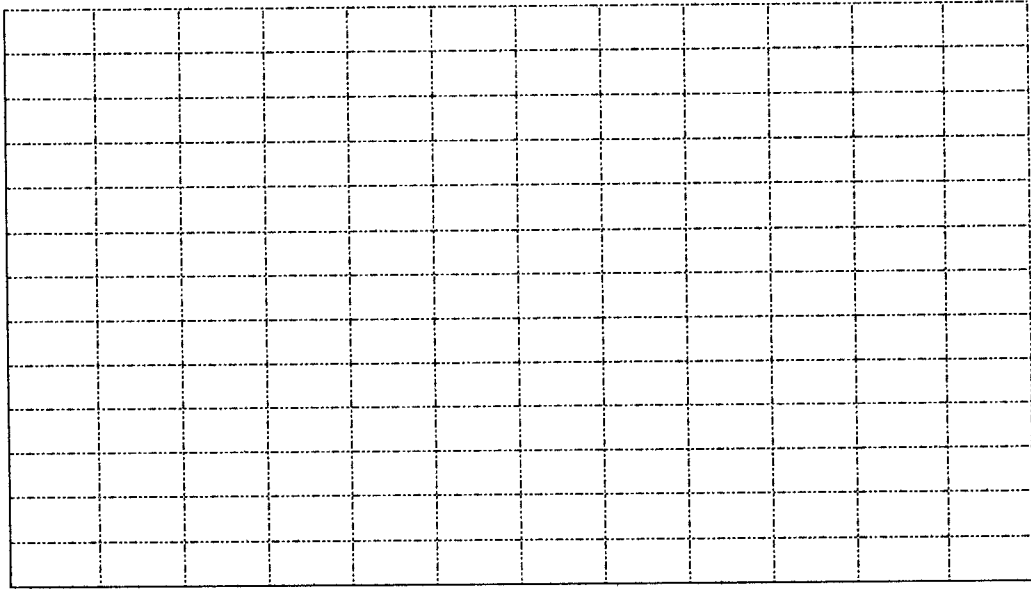
Name (ภาษาไทย).....

2. ( 10 points ) A pottery manufacture is planning to build a new factory because the existing factory cannot meet the customer's demands. The new factory has fixed cost 230,000 bahts a month and variable cost 17.50 baht per piece. Selling price is 22.50 bahts per piece.

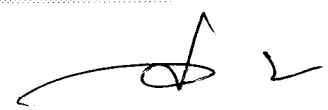
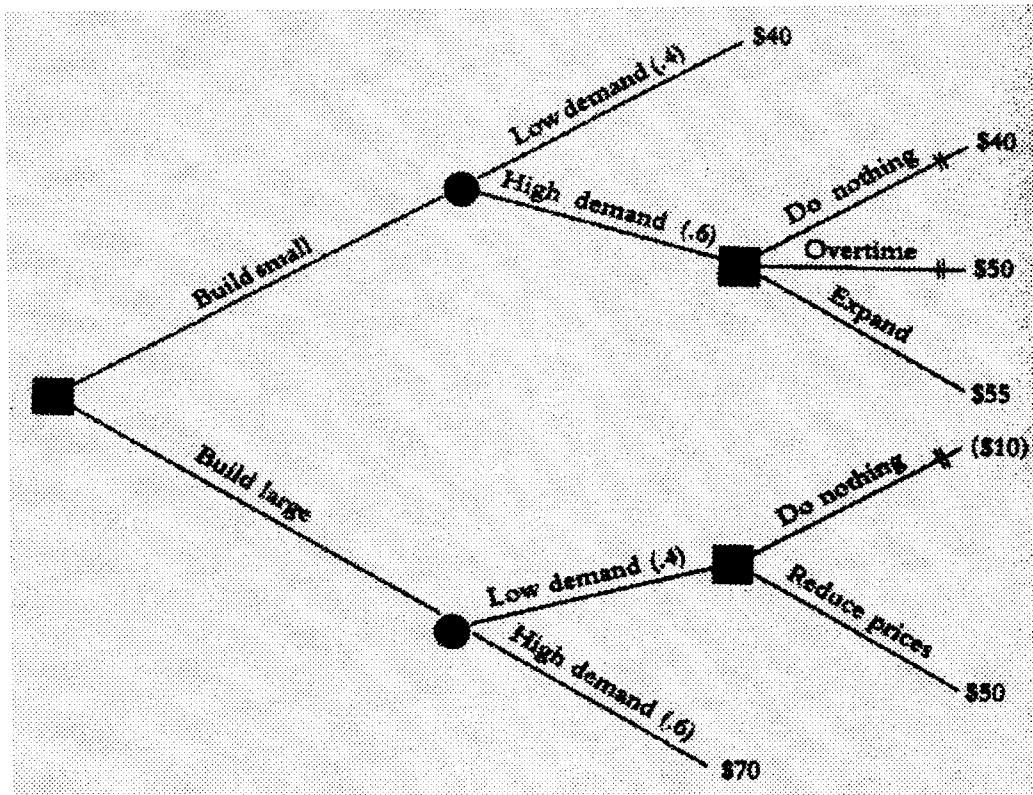
2.1. How many pieces have to produce to meet the breakeven point?

2.2. How many pieces have to produce in order to profit 400,000 bahts per month?

2.3. Draw the breakeven graph with full details.



3. ( 5 points ) An investor plans to build a factory for producing new product. He estimates the returns for each alternative (build small or large factory) as shown in the following figure. Analyze and determine which alternative should be chosen in order to maximize expected return.

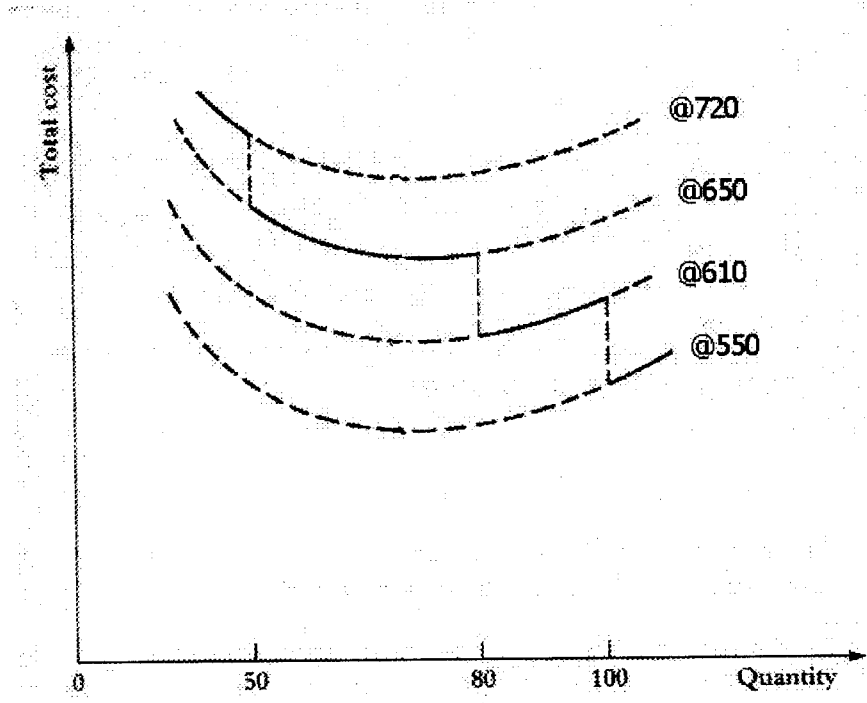


Name (ภาษาไทย).....

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Name (ภาษาไทย).....

4. ( 5 points ) The maintenance department of a large hospital uses 816 cases (กล่อง) of *liquid cleanser* (ของเหลวทำความสะอาด) annually. Ordering costs are 360 bahts, carrying costs are 5 per case a month. If the order less than 50 cases will cost 720 bahts per case, 50 to 79 cases will cost 650 bahts per case, 80 to 99 cases will cost 610 bahts per case, and larger orders will cost 550 bahts per case. Determine the optimal order quantity and the total cost.



Name (ภาษาไทย).....

5. ( 10 points ) Demands for quarter 1 to 4 of a company are 200, 600, 400 and 100 units respectively. The company has 50 workers. Each worker can produces 10 units of product per quarter. Inventory costs = 100 bahts per unit per quarter. Shortage costs = 170 bahts per unit per quarter. Hiring (or layoff) a worker = 1000 bahts. Excess labor cost = 1200 bahts per worker per quarter. Overtime labor cost = 100 bahts per unit. Construct aggregate plan using pure strategy, level production. (Total costs = ?)

