

PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Final Examination: Semester II

Academic Year: 2011

Date: March 1, 2012

Time: 13:30-16:30.

Subject: 225-503 Production Systems & Management

Room: S817

Instructions

- There are 5 questions in 3 pages (include this cover page)
- Answer all 5 questions in the **answer**-book provided
- Open-book exam. All materials, books, papers, calculators and dictionaries are allowed.
- Total score is 90

Questions	Full Score	Assigned Score
Q1	15	
Q2	30	
Q3	12	
Q4	18	
Q5	15	
Total	90	

Assoc. Prof. Somchai Chuchom

ทฤษฎีในการสอบ โทษขั้นต่ำคือ ปรับตกในรายวิชาที่ทฤษฎี และพักการเรียน 1 ภาคการศึกษา



Question 1 (15 marks)

According to the plant visit during the course, explain in details the operation and control of the production line. Specify the tools and/or technologies applied in the line.

Question 2 (30 marks)

- 2-1) How is production system concerned with other activities in society?
- 2-2) Why is the flow of costs important in manufacturing? Also examine the cash flow in and outside a manufacturing firm.
- 2-3) Use of the given terms or phrases below to explain the concepts of the TPS (Toyota Production System) and show in details the implementation of TPS.
- a) Autonomation
 - b) Andon
 - c) Production smoothing
 - d) Pull system
 - e) Visual control
 - f) Creative thinking
 - g) Kanban
 - h) Pokayoke
 - i) Continuous flow of production
 - j) Just in time
 - k) Standardization of operations
 - l) Improvement activities
 - m) Flexible work-force
 - n) Quality control circles
 - o) Function management
 - p) Reduction of setup time
 - q) Machine layout and multi-function worker

Question 3 (12 marks)

According to production management concepts and techniques, each following statement is true or false. (Write your answer only true or false)



- 3.1) The goal of aggregate planning is to achieve a production plan that attempts to balance the organization's resources and meet expected demand.
- 3.2) Aggregate planning is an attempt to respond to predicted demand within the constraints set by product, process and location decisions.
- 3.2) Ultimately the overriding factor in choosing a strategy in aggregate planning is overall cost.
- 3.3) Policies on work force changes is not an input to the aggregate planning process.
- 3.4) Backordering is not a basic option for altering demand.
- 3.5) Moving from the aggregate plan to a master production schedule requires disaggregation.
- 3.6) Allow inventory levels to vary would not be a strategy associated with adjusting aggregate capacity to meet expected demand.

Question 4 (18 marks)

Choose **only one** topic from the list below and explain in details on the selected topic to show that it is a useful tool for decision making in management system for manufacturing, and discuss on the reviewed papers or related work if possible. The lists of topics are:

- 4-1) Production Scheduling (PERT/CPM)
 4-2) Inventory Management (EOQ)
 4-3) Quality Engineering (QC, TQC/TQM, QFD)
 4-4) Production Planning (MRP/CRP, Forecasting)
 4-5) Production Control (TPM)

Question 5 (15 marks)

Compare the following flexible manufacturing systems, A and B, and select an alternative with a larger value for the rate of discount.

	A	B
<i>Initial investment (\$)</i>	100,000	150,000
<i>Annual operating cost (\$)</i>	30,000	25,000
<i>Annual income (\$)</i>	45,000	47,000
<i>Salvage value (\$)</i>	0	15,000
<i>Life (years)</i>	8	10

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