

Faculty of Engineering
Prince of Songkla University

Midterm Examination : Semester 1

Academic Year 2010 (2553)

Date : August 1, 2010 (1 สิงหาคม 2553)

Time : 09:00 - 12:00

Subject : 225-347 Production Planning and Control

Room : A401

ทฤษฎีในการสอบ โทษชั้นด้า ปรับตกในวิชาที่ทฤษฎีนั้น
และพักการเรียน 1 ภาคการศึกษา

Instruction

1. Total examination has 7 topics, 18 pages, and 64 scores.
2. Do your examination in these papers and return all of them.
3. Write down your Name, Surname, and Student Code in every page.
4. Show all calculation and assumption.
5. All books, notes and calculators are allowed but you are not permitted to borrow anything from the others.
6. All figures are not to scale.
7. Draw the graph in plain paper and the scale should be approximately close to the fact.

	Scores	Your Scores
1	10	
2	10	
3	14	
4	10	
5	10	
6	5	
7	5	
Total	64	

No

(From the number in examination list)

Name

Surname

Student Code

Year

Department

Assistant Professor Yodduang Pannara



Name.....Surname.....Student Code.....

1). Describe or calculate all the problems with clear statement

1.1. What are the idea that the person below think about the suitable amount of inventory for himself ?

Why ? (3 Scores)

a. Accountant

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b. Sale man

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c. Purchasing Manager

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d. Managing Director.....

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1.2. MAD and MSE (1 Score)

a. What are MAD and MSE ?

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b. How can you calculate them ?

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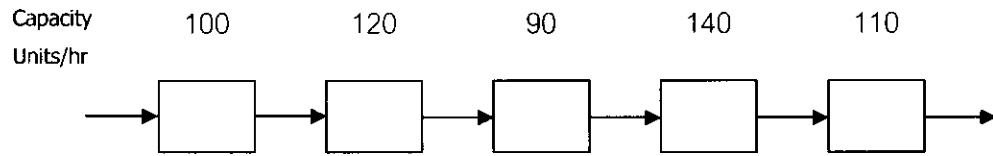
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Name.....Surname.....Student Code.....

1.3. Calculate the capacity of the factory below and explain the reason (2 Scores)



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1.4. From Inventory theory, what is A, B, C, D classification ? (2 Scores)

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1.5. Explain the meaning and benefit of safety stock and reorder point. (2 Scores)

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Name.....Surname.....Student Code.....

2). BIG Media Company has income in figure 2.1

Year	Income (Million Baht)
2553	220
2552	210
2551	208
2550	201
2549	194
2548	185

Figure 2.1 Income of BIG Media Company

- 2.1. Use Single Moving Average ($N=2$) to forecast income in 2554 and calculate MSE and MAD
(4 Scores)
- 2.2. Use Single Exponential Smoothing ($S_0 = 182$ and $\alpha = 0.2$) to forecast income in 2554 and
calculate MSE and MAD (6 Scores)



Name.....Surname.....Student Code.....

3). DATA Two Communication has the income below

Year	Quarter	Income (Million Baht)
2552	1	600
	2	500
	3	570
	4	480
2551	1	580
	2	500
	3	530
	4	475

- 3.1. Use Winter's Linear and Seasonal Technique ($\alpha = 0.1$, $\gamma = 0.2$, $\beta = 0.15$, $I_1 = 1$) to forecast income of each quarter in 2553 and calculate MAD and MSE (12 Scores)
- 3.2. When is the suitable time to use this techniques ? (2 Scores)

Name.....Surname.....Student Code.....

4). Bestpower Retail can sale TV 600 units/week. Ordering cost is 600 baht/times. Holding cost is 20 baht/unit – year (1 year = 52 weeks). The price of TV is 3,000 baht/unit. Interest is 7% per year. In this case the average amount of inventory is $Q^{1.5}$.

(Q is Order Quantity)

Calculate :

4.1. EOQ (Economics Order Quantity)

4.2. Total cost in one year

(10 Scores)



Name.....Surname.....Student Code.....

5). Pasatech factory can produce pumps : 60 units/day. The sale volumes are 1420 units/month. Pasatech factory works 360 days/year and each month is equal 30 days. The set up cost (for manufacturing) is 45,000 baht/times. Holding cost is 0.07 Q baht/unit – day. Pump is 1,780 baht/unit. Interest is 9% per Year. Other cost is 8,000 baht/month. Q is manufacturing quantity
Calculate :

5.1. EMQ (Economic Manufacturing Quantity)

5.2. Total cost in one year

(10 Scores)



Name.....Surname.....Student Code.....

6). Explain the operation method, strength and weakness of the inventory system below

1. Two-Bin system
2. Fixed order quantity system
3. Fixed order Interval system
4. MRP

(5 Scores)



Name.....Surname.....Student Code.....

7). If you are the inventory manager of Cantosa Department Store. What are your idea to manage the inventory system of very big department store ? (5 Scores)

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