

系所組別： 工業與資訊管理學系丙組

考試科目： 生產與作業管理

考試日期：0223，節次：2

※ 考生請注意：本試題不可使用計算機。 請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. **Strategy, at both corporate and functional levels, involves setting direction into the coming future. Thus, it is important to understand the current business and competitive environment, but must also gain insight into future trends. Please list the Changes taking place in the industrial world and explain the corresponding impacts of the changes on the field of production and operations management. (25%)**

2. **In terms of competitive priorities, What Items in the past that companies widely competed on? How did they achieve these tasks? Should these items that companies competed on change for today's economic environment? And why if the answer is positive? (25%)**

(背面仍有題目，請繼續作答)

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3. A student is going to be graduated from a university this summer. There are four possible positions for this student, and the wage (for thousand NT dollars) of each position depends on the economic situation of this summer.

Position	Economic situation		
	I	II	III
A	42	40	46
B	39	44	43
C	37	42	50
D	35	43	52

- (1) (5%) When this student is aggressive in making this decision, determine the position chosen by the student.
- (2) (5%) If this student considers that the wage should not be too disappointing when the actual best position of this summer is not chosen, which position will be the most appropriate alternative for this student?

4. The cost and revenue functions in a farm for apples are $C(q) = 70000 + 100q + 2q^2$ and $R(q) = -q^3 + 32q^2 + 2500q$, respectively, where the unit of quantity q is kilogram.

- (1) (8%) Solve for break-even points.
- (2) (5%) Compute and interpret $R'(10)$.
- (3) (7%) Determine the point with a maximal profit, and compute this profit.

5. (20%) Suppose that every month has 20 working days. The production information of a company for the first half of year 2014 is shown in the following table. Discuss whether the company should use chase strategy (production meets demand each month) or level strategy (total production meets total demand) to set its aggregate plan.

Holding cost	\$5 per unit per month	Month	Demand
Production rate	1.6 labor-hours per unit	January	900
Working time	8 hours per day	February	700
Hiring cost	\$200 per person	March	800
Layoff cost	\$300 per person	April	1,200
Initial inventory	800 units	May	1,500
Ending inventory	800 units	June	1,100