國立成功大學

110學年度碩士班招生考試試題

編　號：243

系　所：工業與資訊管理學系

科　目：生產與作業管理

日　期：0203

節　次：第 2 節

備　註：可使用計算機

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1. Short description questions:

(1) The current issues in business that impact operations management. (8%)

(2) The role of the available-to-promise (ATP) for conducting the master scheduling process. (6%)

(3) Why the use of either kanban or MRP does not preclude the use of the other? (6%)

2. Give a simple example to describe how to implement QFD and six sigma. (18%)

3. Give a simple example to explain how techniques described in the work design and measurement could be used to improve operations. (12%)

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4. (22%) A company makes a component at a rate 320 per day. The annual demand of this component is 72,000. We assume that the demand is uniformly over the entire year. Holding cost is $4 per component a year, and setup cost for a production lot is $40. The company operates 300 days a year.
   (a) (7%) What is the optimal lot size?
   (b) (4%) What is the cycle time under the optimal lot size
   (c) (4%) What is the run time?
   (d) (7%) What is the minimum total annual cost (carrying and setup)?

5. (16%) A firm chooses a policy for improving manufacturing among four alternatives. However, the firm is uncertain about the future market and thus divides it into three possible situations. The payoff table is as follows:

Payoff Table

	Situation 1	Situation 2	Situation 3
Policy 1	10	8	-6
Policy 2	-3	6	9
Policy 3	1	3	5
Policy 4	9	-9	15

Explain and determine which policy would be chosen under the following approach.
   (a) (4%) Optimistic approach
   (b) (4%) Maximin approach
   (c) (4%) Laplace approach
   (d) (4%) Minimax regret approach

6. (12%) Determine the minimum number of workers needed, and a schedule for the following requirements, giving workers two consecutive days off per cycle (Sunday is not included).

Workdays	Mon	Tue	Wed	Thu	Fri	Sat
Worker needed	6	2	3	3	4	5