

國立高雄應用科技大學
100 學年度碩士班招生考試
工業工程與管理系（甲組）

准考證號碼 （考生必須填寫）

生產管理

試題 共 3 頁，第 1 頁

- 注意：a.本試題共 5 大題，共 100 分。
b.作答時不必抄題，但請依題號順序作答。
c.考生作答前請詳閱答案卷之考生注意事項。

【試題由此開始】

1. Briefly clarify the following key words. (30%)

- (1)mean absolute percent error
- (2)design for recycling
- (3)predetermined time standard
- (4)planned-order release
- (5)chase demand strategy
- (6)fail-safing

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2. (20%)

A manager must set up inventory ordering systems for two production items, H03 and H07. H03 can be ordered at any time, but H07 can be ordered only once every four weeks. The company operates 50 weeks a year, and the weekly usage rates for both items are normally distributed. The manager has gathered the following information about the items.

	H03	H07
Average weekly demand	60 units	70 units
Standard deviation	4 units per week	5 units per week
Unit cost	\$15	\$20
Annual holding cost	30%	30%
Ordering cost	\$70	\$30
Lead time	2 weeks	2 weeks
Acceptable stockout risk	2.5%	2.5%

- (1) When should the manager reorder each item? (6%)
- (2) Compute the order quantity for H03. (7%)
- (3) Compute the order quantity for H07 if 110 units are on hand at the time the order is placed. (7%)

3. (20%)

Given the following information on job times and due dates, determine the optimal processing sequence using (1)SPT, (2)EDD and (3)CR . For each method, find the average job flow time and average job tardiness.

Job	Job time (Hrs)	Due date (Hrs)	Remaining number of operations
A	3.5	7	3
B	2.0	6	2
C	4.5	18	5
D	5.0	22	4
E	2.5	4	1
F	6.0	20	3

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4. (15%)

Chuck’s Custom Boats (CCB) builds luxury yachts to customer order. CCB has landed a contract with a mysterious New York lawyer (Mr. T). Relevant data are shown below. The complication is that Mr. T wants delivery in 32 weeks or he will impose a penalty of \$375 for each week his yacht is late. *Note*: No activity can be crashed more than two weeks.

Activity	Immediate Predecessor	Normal time (Weeks)	Crashing Cost	
			1st week	2nd week
K		9	\$410	\$415
L	K	7	125	-
N	K	5	45	45
M	L	4	300	350
J	N	6	50	-
Q	J, M	5	200	225
P	Q	8	-	-
Y	Q	7	85	90
Z	P	6	90	-
End	Y, Z			

(1) Draw the precedence diagram. (5%)

(2) Develop a crashing schedule. (10%)

5. (15%)

The following equation summarizes the trend portion of quarterly sales of condominiums over a long cycle. Sales also exhibit seasonal variations. Using the information given, prepare a forecast of sales for each quarter of next year (not this year) and the first quarter of the year following that.

$$F_t = 40 - 6.5t + 2t^2$$

where

F_t = unit sales, and

$t = 0$ at the first quarter of last year. (ie. $t = 8 \sim 11$ in the next year)

Quarter	Relative
1	1.1
2	1.0
3	0.6
4	1.3

【試題到此結束】