

國立虎尾科技大學九十五學年度研究所（碩士班）入學試題

考試科目 2：生產管理

所別：工業工程與管理研究所

計 5 頁 第 1 頁

注意事項：(1) 本試題共有六大題，合計 100 分。

(2) 請務必作答於答案卷中，並將題號標示清楚，否則不予計分。

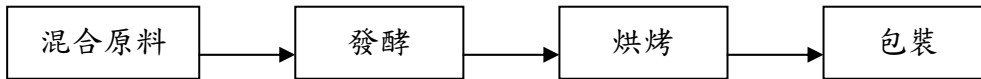
I. (12%) 簡答題

(a)(6%) 請敘述各階段產品生命週期與各種製程類型之間的關係為何？

(b)(6%) What is benchmarking? Why is it important for firms that want to compete globally to adopt benchmarking?

II. (15%)

某家麵包公司想要知道其產能，以每小時可以製造多少磅的麵包為單位，該公司的生產流程如下圖：



目前該公司擁有下列設備，其數量和產能如下表所示：

階段	產能(每部機器每小時所能處理的磅數)	機器數量
混合	60	3
發酵	25	6
烘烤	40	4
包裝	75	3

(a)(3%) 目前每小時的產能為何？

(b)(3%) 整個程序的瓶頸在哪裡？

(c)(4%) 若可以購買一部相同的機器設備來增加瓶頸階段的產能，請問新的產能為何？增加新設備後，瓶頸將轉移至何處？

(d)(5%) 請問購買機器設備來克服問題 (c) 之瓶頸是需要的嗎？請論述。

III. (16%)

The AIG Carpet Discount Store in North Georgia stocks carpet in its warehouse and sells it through an adjoining showroom. The store keeps several brands and styles of carpet in stock; however, its biggest seller is Super Shag carpet. We assume that daily demand for Super Shag carpet stocked by the store is normally distributed with an average daily demand of 25 yards and a standard deviation of 6 yards of carpet per day. The lead time for receiving a new order of carpet is 15 days. If the store wants a service level of 97.5 percent.

(a)(8%) Determine the reorder point.

(b)(8%) Determine the safety stock.

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計 5 頁 第 2 頁

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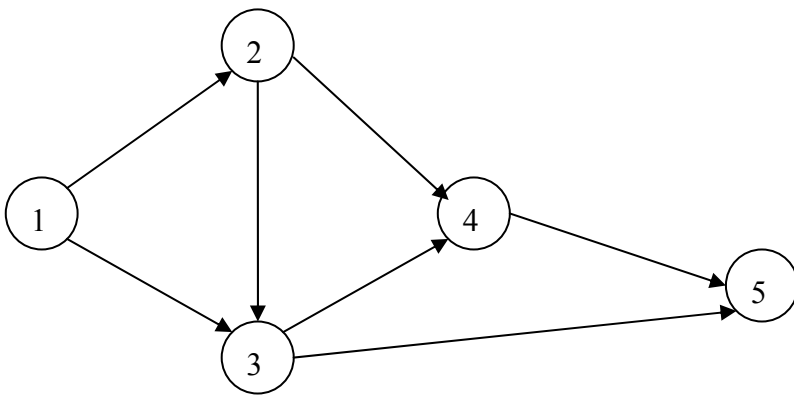
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IV. (20%)

Given the following network and activity time estimates:

(a: Optimistic Time Estimate, m: Most Likely Time Estimate, b: Pessimistic Time Estimate)

ACTIVITY	TIME ESTIMATES (DAYS)		
	a	m	b
1-2	6	10	14
1-3	9	12	15
2-3	3	5	7
2-4	4	7	10
3-4	5	6	7
3-5	4	7	10
4-5	2	8	14



(a)(15%) Complete the following Table:

ACTIVITY	ES (earliest start)	EF (earliest finish)	LS (latest start)	LF (latest finish)
1-2				
1-3				
2-3				
2-4				
3-4				
3-5				
4-5				

(b)(5%) The probability that the project will be completed in 30 days or less.

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計 5 頁 第 3 頁

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V. (16%)

A computer software firm has experienced the following demand for its “Personal Finance” software package:

PERIOD	UNITS
1	56
2	61
3	55
4	70

Complete the following Table for period 2 to 5: (請將下面表格中附有英文字母(a)~(h)之計算結果填寫在答案卷上)

(a)(8%) **Ft**: an exponential smoothing forecast using $\alpha=0.4$

(b)(8%) **AFt**: an adjusted exponential smoothing forecast using $\alpha=0.4$ and $\beta=0.2$

PERIOD	Dt (Demand)	Ft	AFt
1	56	-----	-----
2	61	(a)	(e)
3	55	(b)	(f)
4	70	(c)	(g)
5		(d)	(h)

VI. (21%)

School Mate offers a number of standard products to encourage writing outside of the classroom, including clipboards, lapdesks, lapboards, and pencil boxes. Rising costs and inventory levels have prompted the company to install a computerized planning and control system called MRP. The MPS and BOM are up and running. Before going live with the MRP module, School Mate has asked for a manual demonstration. Since manual calculation can be quite tedious, you have decided to prepare MRP matrices for a common component, **pressboard**. The master production schedule, abbreviated product structure diagrams, and inventory information are given below.

MPS					
	1	2	3	4	5
Clipboard	90	80	110	100	100
Lapdesk	0	60	0	60	0

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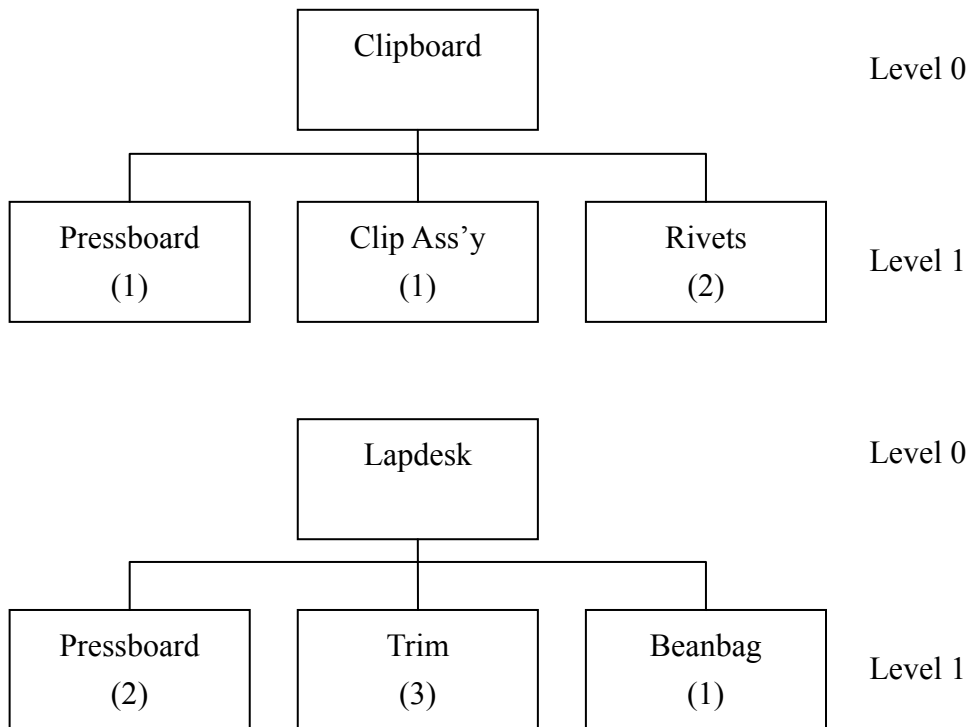
計 5 頁 第 4 頁

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Item Master File			
	CLIPBOARD	LAPDESK	PRESSBOARD
On hand	30	20	100
On order	175(period 1)	0	0
LLC	0	0	1
Lot size	L4L	Min 50	L4L
Lead time	1	1	1

Product Structure Record



(請將下面表格中附有英文字母(a)~(g)之計算結果填寫在答案卷上)

ITEM: Pressboard	PERIOD				
LLC:1					
Lot size: L4L, LT:1	1	2	3	4	5
Gross Requirements	(a)	(b)	(c)	(d)	
Scheduled Receipts					
Projected on Hand 100					
Net Requirements					
Planned order Receipts		(e)			
Planned order Releases		(f)	(g)		

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