

朝陽科技大學 101 學年度碩士班招生考試試題

系(所)別：工業工程與管理系

總分：100 分

組別：一般生

科目：生產管理

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I. 選擇題 (40%:(單選)1 題 4 分) [請作答於答案卷]

- 以下發展演進之先後順序何者正確？
(A) 企業資源規劃→延伸企業資源規劃→物料需求規劃→製造資源規劃
(B) 製造資源規劃→物料需求規劃→企業資源規劃→延伸企業資源規劃
(C) 物料需求規劃→企業資源規劃→製造資源規劃→延伸企業資源規劃
(D) 物料需求規劃→製造資源規劃→企業資源規劃→延伸企業資源規劃
- 在生產規劃與控制中，下列正確的規劃順序為何 (1) 物料需求規劃 (2) 需求管理 (3) 銷售與作業規劃 (4) 主生產規劃
(A) 3241 (B) 2341 (C) 3421 (D) 3124
- 一般製造業之生產型態，下列何者必須事先預測市場需求並安排生產，以預先生產的完成品來滿足顧客的訂單？
(A) Make-to-order (B) Make-to-stock (C) Engineer-to-order (D) Assembly-to-order
- 在 ABC 分析法中，企業 10-30% 存貨項目其價值，佔全部存貨價值的 70-80%，此類存貨通稱？
(A) A 類 (B) B 類 (C) C 類 (D) 其他類
- 經濟訂購批量模型 (EOQ) 中影響經濟訂購批量的因素包含 (1) 訂購準備成本 (2) 年度需求量 (3) 購買成本 (4) 持有成本
(A) 1234 (B) 123 (C) 234 (D) 124
- 下列何者不是同步工程 (concurrent engineering) 的優點
(A) 減少設計成本
(B) 因應市場需求
(C) 增加即時交貨
(D) 提高設計品質
- 下列何者不是 TPS (Toyota production system) 中的重要概念
(A) 看板 (B) 大量客製化 (C) 自動化 (D) 改善
- 對於 U 字型生產線，下列何者正確 (1) 工作輪調容易 (2) 工作易協調 (3) 工作單調 (4) 品質較易掌握 (5) 物料搬運最小化
(A) 1234 (B) 1245 (C) 1235 (D) 12345
- 下列何者是零工式生產的缺點
(A) 標準化 (B) 停機成本高 (C) 產品少樣 (D) 複雜的規劃與排程
- 以下何者不是服務品質的構面
(A) 一致性 (B) 可靠度 (C) 便利性 (D) 回應程度

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II. 計算題 (60%) [請作答於答案卷]

The following problem is for Questions 1 and 2:

Super-star notebook computers retailer store has experienced the following monthly sales for one of its hot selling model for the past 10 months:

Months	1	2	3	4	5	6	7	8	9	10
Sales	110	121	99	104	95	108	114	92	106	100

1. If the store uses Moving Average method with $N=4$ (i.e. MA(4)) to forecast monthly sales; please determine the one-step-ahead forecasts made for months 9 and 10 (i.e. to find F_9 and F_{10}).

Answers: $F_9=?$; $F_{10}=?$

[8%]

2. From the sixth month on, suppose the store decided to use Exponential Smoothing forecasting method with $\alpha=0.2$ (i.e. ES(0.2)) and it has an initial value of forecast for the 5th month as $F_5=108.5$; please determine the one-step-ahead forecast made for month 6.

Answers: $F_6=?$

[5%]

3. Sales of specific jogging shoes at *Sport Specialty Inc.* appear to exhibit a seasonal pattern. The owner Thomas Jones has kept quarterly sales records of this item for the past two years as follows.

1. (Winter)	52	60
2. (Spring)	266	249
3. (Summer)	320	301
4. (Fall)	112	119

Assuming no trend in jogging shoes sales over the past two years, please determine the seasonal factor for summer.

Answers: seasonal factor for Summer: $f_{\text{Summer}}=?$

[7%]

4. *Petersons Inc.* produces a product for several local industrial clients. It has experienced a relatively flat demand of 4,000 units per year. This item can be produced at a rate of 10,000 units per year. The accounting department estimates that it costs \$240 to initiate a production run, each unit costs \$2 to manufacture, the cost of holding is based on an annual interest rate of 25%. The company would like to determine the most economic production quantity (EPQ) for this product.

Answer: $Q^*=?$

[10%]

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5. *Smith Mining Inc.* routinely replaces a specific part on a certain type of equipment. The usage rate is 2600 per year and there is no significant seasonality. The supplier of the part offers the following **All-Units Discount** structure:

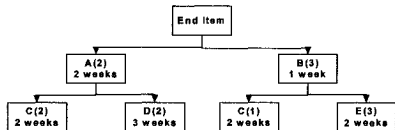
<i>Range of Q</i>	<i>Unit Cost</i>
$0 < Q < 500$ units	\$30.00
$500 \leq Q$	\$28.00

The fixed cost (K) for placing an order is estimated to be \$200, and a carrying (holding) charge of 30% annual interest rate is used by the company. What replenishment size (Q^*) should be used?

Answer: $Q^* = ?$

[10%]

6. Consider the product structure diagram given below



Assume that the MPS for the end item for weeks 9 through 16 is

Week	9	10	11	12	13	14	15	16
Net Requirements	185	150	180	320	280	210	170	200

Also assume that lot-for-lot scheduling is used throughout and at the end of week 7, there are 695 pieces of component B on-hand. Also in the beginning of week 10 the plant expects to receive 1900 pieces of component C; and in the beginning of week 11 receives 1380 pieces of 'D'.

Determine the **planned order release** for **component B**.

[10%]

Answer: 請用類似以下格式作答於答案卷

component B						9	10	11	12	13	14	15	16
Gross requirements													
On-hand inventory													
Net requirements													
Time-phased net requirements													
Planned order release (lot for lot)													

[請以上列格式作答於答案卷]

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7. Six jobs are to be processed through a single machine. The processing times and due dates are given below.

Job	1	2	3	4	5	6
Processing time	7	4	11	10	3	9
Due date	14	26	24	30	17	12

Determine (a) **the sequence** and (b) **the maximum tardiness** of the jobs in order to minimize the maximum lateness.

[5%+5%]

[請作答於答案卷]