

國立屏東科技大學 九十四 學年度 碩士班甄試招生考試
生產與作業管理 試題

第一部份：單選題 (45%)

【注意事項：共十五題，每題只有一個正確答案，每題選擇題為三分，未答或答錯得零分。】

1. A forecasting method that continually modifies the forecast made in the previous period is:
(A) exponential smoothing ,
(B) simple linear regression analysis ,
(C) modified gradient ,
(D) tracking signal。
2. A distinguishing feature of a process layout is that:
(A) a variety of custom products in relatively small batches is being made ,
(B) service versus manufacturing is being accomplished ,
(C) all products follow a fixed route through the facility ,
(D) the layout is specified in a series of linear production cells。
3. In linear programming problems, a relationship between decision variables in the objective function and decision variables in the constraints is:
(A) every constraint must contain each objective function decision variable with non-zero coefficients ,
(B) some constraints can have decision variables that do not appear in the objective function ,
(C) all constraints must have decision variables that appear in the objective function ,
(D) no relationship exists。
4. The master production schedule should be updated:
(A) daily ,
(B) biweekly ,
(C) weekly ,
(D) monthly。
5. Order entry and order promising are important functions within which activity ?
(A) rough-cut capacity planning ,
(B) aggregate planning ,
(C) material requirements planning ,
(D) master production planning。
6. Management sets a service level at 95% for a material. This means that:
(A) 95% of all customer orders for the material will be filled ,
(B) 5% of all customer orders for the material will be filled ,
(C) there is a 5% probability of a stock-out on the material ,
(D) there is a 5% probability that a portion of safety stock will be used。

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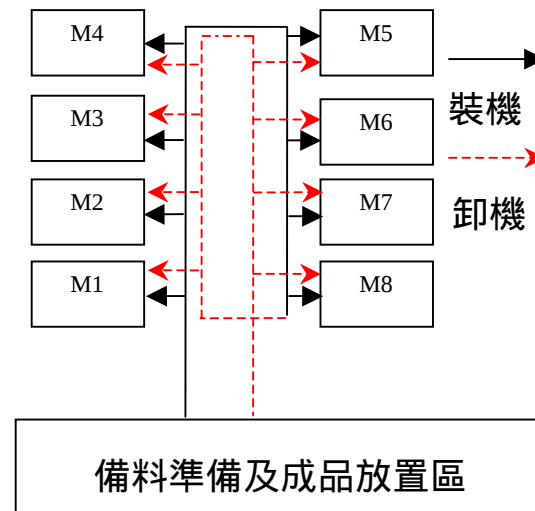
7. We simultaneously set the order point when:
- (A) we set the EOQ ,
 - (B) we set the lead time ,
 - (C) we set the safety stock level ,
 - (D) None of the alternatives is correct.
8. A two-bin inventory system is an example of a:
- (A) fixed order quantity system ,
 - (B) fixed order period system ,
 - (C) EOQ with gradual deliveries ,
 - (D) EOQ with quantity discounts.
9. A bills of material (BOM) file includes:
- (A) invoices for materials that must be paid in this period ,
 - (B) a list of materials and quantities required to produce one unit of an end item ,
 - (C) accounts payable for materials ,
 - (D) invoices for materials that must be paid in this period and accounts payable for materials.
10. In MRP, lead-time allows us to move from:
- (A) scheduled receipts to gross requirements ,
 - (B) planned order receipts to planned order releases ,
 - (C) gross requirements to net requirements ,
 - (D) on-hand to available.
11. MRP systems are based on the philosophy that:
- (A) parts are interchangeable ,
 - (B) the MPS (master production schedule) can be changed at any point ,
 - (C) raw materials, parts, and assemblies should arrive at the right time to produce end items ,
 - (D) the bills of material is the key ingredient for the inventory status file.
12. Scheduled receipts are:
- (A) also called planned order receipts ,
 - (B) materials that are on order and scheduled to be received in a specific period ,
 - (C) materials reserved for spare parts demand ,
 - (D) used to meet unforeseen demand during lead times.
13. The chief disadvantage of the shortest processing time rule is:
- (A) average job completion times are excessive ,
 - (B) average number of jobs in the system is excessive ,
 - (C) long duration jobs may have excessive completion times ,
 - (D) average job lateness is excessive.

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14. If a job is late, then its lateness is the:
- (A) difference between its flow time and its production time ,
 - (B) difference between its flow time and its time to promised delivery ,
 - (C) sum of the flow times divided by its production time ,
 - (D) critical ratio multiplied by its production time.
15. Which sequencing rule will always minimize the average flow time ?
- (A) shortest processing time ,
 - (B) critical ratio ,
 - (C) least slack ,
 - (D) first-come first-served.

第二部份：生產實務題 (55%) (共四題)

- I. 某工作站其配置如右圖，該工作站是以一個操作員操作 8 台機器，目前工作的標準作業程序如下：1.至備料準備區準備待加工件；2.將待加工件裝置在機台上，並啟動機台(簡稱裝機)，依序從 M1 至 M8 裝機；3.將已加工完畢的成品卸下(簡稱卸機)，依序從 M1 至 M8 卸機；4.將成品放置在成品放置區。



經實地觀察發現此工作站問題如下：

- 1.操作員採 4 班 2 輪制，因為工作疲累，所以員工流動率高；
- 2. 機台閒置率高，通常操作員裝置到第 6 台機器時，第一台機器已經加工完畢等待卸機，在備料準備區準備待加工件時所有機台都已加工完畢等待卸機。

因該工作站已經裝置完成，所以不能減少機台；又因為裝卸機的動線狹窄，所以不能增加操作員，在這些情況下請問你(妳)應該如何進行改善？(15%)

- II.請就長期、中期及短期生產計劃要做什麼事及彼此間之關係繪圖說明之。 (15%)

Hint: MRP(Material requirements planning), MS(Master scheduling), SFC(Shop floor control), MPS(Master production Schedule), CRP(Capacity requirement planning), ORRS(Order review/release system), RCCP(Rough-cut capacity planning), RP(Resource planning), APP(Aggregate production planning), PP(Production Planning), (DSFOS) Detailed shop floor operations scheduling.

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III. 有那些指標可用以判定生產線中瓶頸工作站(Bottleneck Workstation)？一般而言瓶頸工作站有那些方法可提升其生產力？瓶頸工作站之前及之後的工作站於生產時應注意什麼？(10%)

IV. 一個操作員操作兩台機器 (M1, M2)，其操作程序及標準工時如下列步驟，現況的人機程序圖如下圖：

- 步驟 1：待加工件準備工作(10 秒)；[準備]
 步驟 2：將待加工件清潔妥後置入機台中(10 秒)；[加工清潔]
 步驟 3：啟動機器並檢查機器讀數(10 秒)；[啟動]
 步驟 4：機器加工(180 秒)；[加工]
 步驟 5：打開機台執行卸機準備動作(10 秒)；[卸機]
 步驟 6：卸下加工件並執行清潔動作(15 秒)；[卸機清潔]
 步驟 7：將加工完成品放置一旁工作桌上並檢查(10 秒)；[放置]
 步驟 8：走路至另一台機器(5 秒)。[走路]

請詳細說明應如何改善並提高生產力？改善過後你(妳)的生產週期時間為何？(15%)

操作員	Time	M1	Time	M2	
準備 M1	5 sec	M1 裝機		M2 閒置	
加工清潔 M1					
啟動 M1					
走路至 M2					
準備 M2		M1 加工		裝 M2	
加工清潔 M2					
啟動 M2					
走路至 M1					
人員閒置					M2 加工
	卸 M1		M1 卸機		
M1 卸機清潔					
M1 放置					
走路至 M2					
卸 M2		M1 閒置			
M2 卸機清潔					
M2 放置					
走路至 M1					