

國立屏東科技大學 九十六 學年度 碩士班甄試招生考試
工業管理研究所 生產與作業管理 試題

原始成績：滿分 100 分

■可使用計算機

You can use Chinese or English to answer the following questions.

1. Please define and provide the meaning of WIP (Work-In-Process) 。 (10%)
2. What is the purpose and function of Aggregate Planning? Contract the meanings and functions of the terms Aggregate Planning and Master Production Schedule. (15%)
3. The BenQ computer corporation purchases 8,000 transistors each year as components in minicomputers. The unit cost of each transistor is \$10, and the cost of carrying one transistor in inventory for a year is \$3. Ordering cost is \$30 per order. What are
 - (a) the economic order quantity, (8%)
 - (b) the expected number of orders placed each year, and (6%)
 - (c) the expected time between orders? Assume that BenQ corp. operates a 200-day working year. (6%)
4. Based on problem 3, what safety stock should BenQ computer corporation maintain if mean sales are 420 during the reorder period, the standard deviation is 70, and the BenQ corp. can tolerate stock-outs 10% of the time ? The information of standard normal distribution can be obtained as the following table. (15%)

z	$f(z)$	z	$f(z)$
-1.30	0.0968	1.27	0.8980
-1.29	0.0985	1.28	0.8997
-1.28	0.1003	1.29	0.9015
-1.27	0.1020	1.30	0.9032

5. A defense contractor in Pingtung has three jobs waiting for processing. Processing time and due dates are given in the following table. Assume that jobs arrive in the order shown. Set the processing sequence according to priority rules of SPT and CR (Critical ratio) and evaluate (including (1) average completion time, (2) average number of jobs in system, (3) average job lateness, (4) utilization). Assume that today is day 10 on the schedule. (20%)

Job	Processing Time (days)	Due Date	Workdays Remaining
A	8	18	4
B	3	15	5
C	9	23	9

6. A furniture company based on the experience is forecasting the customers' needs of the future and is shown in the following table. The beginning inventory is 10 units. The production(MPS) is in batch and the batch size is 20 units. The Orders from customers are provided also in the table. Please calculate the Available-To-Promise (ATP) and fill the blanks in the table. (20%)

Week	1	2	3	4	5
Forecast	6	6	6	20	20
Customer orders	8	4	12	12	
Projected on-hand (Beginning inventory = 10)					
MPS (batch size = 20)					
ATP					