本考科	☑可使用計算機 □無須使用計算機	計算機型式：□普通型（僅含＋－×÷等普通功能） ☑工程用計算機（不含程式輸入功能）

1. Please describe the term "productivity" and what would you do to maintain the productivity if you own a factory and the incoming orders have been steadily decreasing for the last three years.(20%)

2. For the basic EOQ model, the inventory holding cost sometimes is assumed to be equal to interest rate times unit cost, (h=i*C), please give an real life example for this equation to be reasonable. (20%)

3. Please give areal life example for the single period inventory model (newsboy problem) and explain how it works. (20%)

4. The following is a BOM list of components required to produce one unit of end item P:

P: 2 A's, 3 B's, 3 C's
A: 5 M's, 2 R's
B: 1 D, 3 N's.
C: 1 T, 4 N's
M: 1 N

Given that the on-hand inventory consists of 15 P's, 10A's, 20 B's, 10 C's, 100 N's, 300 T's, and 200 M's., please determine the number of N's that will be needed to make a total of 60 P's.(20%)

5. Can the following 6 / 3 / F / Cmax (makespan) problem be solved optimally? If so, what is the schedule? (20%)

Job	Machine1	Machine2	Machine3
1	15	6	15
2	10	8	9
3	13	3	17
4	16	8	5
5	9	5	15
6	11	7	8