

## 國立台灣科技大學九十六學年度博士班招生試題

系所組別：工業管理系博士班乙組

科目：生產管理

總分100分

1. (25%) As part of a major school renovation project, the planning department of NTUST has been asked to balance a set of registration related operations to achieve an output of 240 units per eight-hour day. Task times and precedence relationships are as follows:

Task	Duration (minutes)	Precedes Task
a	0.2	b
b	0.4	c
c	0.2	f
d	0.4	e
e	1.2	g
f	1.2	g
g	1.0	end

Do each of the following:

- (10%) Determine the calculated cycle time, and the minimum number of stations needed.
- (10%) Assign tasks to workstations on the basis of greatest number of following tasks. Use longest processing time as a tiebreaker. If ties still exist, assume indifference in choice.
- (5%) Compute the percentage of idle time for the assignment in part b).

2. (25%) (a) 何謂長鞭效應? (10%) 並舉一例說明。 (b) 詳論長鞭效應發生的原因。(15%)

## 國立台灣科技大學九十六學年度博士班招生試題

系所組別：工業管理系博士班乙組

科 目：生產管理

**3. Task time estimates for a production line project at RK's Ontario factory are as follow: (20%)**

Activity	Time (in hours)	Immediate Predecessors
A	6.0	-
B	7.2	-
C	5.0	A,B
D	6.0	B
E	4.5	C,D
F	7.7	E
G	4.0	D,F

- Draw the project network using AON and AOA. (5%)
- Identify the critical path. (5%)
- What is the expected project length? (5%)
- Draw a Gantt chart for the project. (5%)

**4. 解釋名詞與簡答：30%**

- Lean production (5%)
- Drum-buffer-rope (5%)
- Design for manufacturing (5%)
- Aggregate planning (5%)
- Vendor managed inventory (5%)
- Delayed differentiation (5%)