

# 大同大學 九十 學年度 轉學考試 試題

考試科目：管理數學 系別：資訊經營學系 級別：三年級 第 / 頁，共 / 頁

註：本次考試不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

1. 武俠小說神鵰俠侶中，襄陽城之武林大會蒙古方與南宋方的與賽代表及各代表間捉對廝殺的勝算率如以下附表。表格中在斜線上方表南宋之勝算率，下方則為蒙古之勝算率。因雙方人數並不相等，南宋乃禮義之邦，故提議蒙古可有一虛擬人物應戰，且不論此虛擬人物與南宋方何人對打，均假設為打成平手。請據此為南宋方與蒙古方擬出勝算率最高的出賽策略。如果有多種策略，請務必要一一列出。(40%)

宋

	郭靖	朱子柳	點蒼漁隱	楊過
金輪法王	5 ⑤	①	2 1/4 ⑧	3 3/4 ⑦
霍都王子	10 ✓ ⑩	④ ✓	5 1/2 ⑤	8 ✓ ④
達爾巴	10 ⑩	②	3 3/4 ⑦	7 1/2 ③

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2. Consider the following table to solve the following question sets.
- (a) Determine all the critical paths (CPMs) and the value of the CPM. (16%)
- (b) If we want to complete this project within 25 days, please compute the probability. (4%)
- (c) Follow question (b), determine the total crash cost and the CPMs if changes occurs. (5%)
- ( $\beta$  Distribution is applied.  $\mu=(O+4M+P)/6$ ,  $\sigma=(P-O)/6$ ,  $P(Z \geq 0)=0.5$ ,  $P(Z \leq 0.19)=0.0753$ )

Activity	1-2	1-3	1-4	2-3	2-5	3-5	3-6	4-6	4-7	5-6	5-8	6-8	6-7	7-8
Most Likely Time	5	10	14	5	9	3	7	3	4	4	12	6	1	6
Optimistic Time	2	7	5	2	6	3	7	3	1	4	9	6	1	3
Pessimistic time	8	19	17	14	12	3	13	21	7	10	15	12	1	9
Unit crash cost	100	600	500	1800	1100	9000	300	1600	200	800	1200	400	9000	400
	0.1	0.6	0.5	1.8	1.1	9	0.3	1.6	0.2	0.8	1.2	0.4	9	0.4

3. A firm producing a single product has 3 plants and 4 customers. The 3 plants will produce 6, 8, and 4 units, respectively, during the next time period. The firm has made a commitment to sell 4 units to customer 1, 6 units to customer 2, and at least 2 units to customer 3. Both customers 3 and 4 also want to buy as many as the remaining units as possible. The net profit associated with shipping 1 unit from plant i for sale to customer j is given by the following table. Solve this transportation problem. (35%)

	Customer 1	Customer 2	Customer 3	Customer 4
Plant 1	8	7	5	2
Plant 2	5	2	1	3
Plant 3	6	4	3	5

( Please show all works to get full credit ! 請列出計算過程否則不予給分 )

Handwritten calculations and notes on the right side of the page, including various arithmetic problems and algebraic steps.

89  
131 84 240  
400

5 9  
10 9  
14 3  
29 17

7 4  
3 12  
4 6  
51 22 7

29 16  
17 16  
14 20  
22 22  
7 29  
9

9 14 16  
5 22 36  
25 35 40  
334 47  
25 55  
1670  
668  
838

14 3  
42 42

135 206  
25 25  
675 1020  
270 448  
3375 5600

25 72  
42 29  
67 109

115 142  
21 12  
136 154  
4

158  
36  
194  
12  
206

206 7  
213