

淡江大學 100 學年度進修學士班轉學生招生考試試題

系別：資訊工程學系三年級

科目：離散數學

13-1

考試日期：7月20日(星期三)第4節

本試題共 8 大題， 2 頁

本試題雙面印刷

1. Let $A = \{a, b, c, d\}$, $B = \{b, c, e\}$. What are

- (a) $A \cap B$ (3%)
 (b) $A \cup B$ (3%)
 (c) $A - B$ (3%)
 (d) $B - A$ (3%)

2. If $C - D = \{2, 5, 9\}$, $D - C = \{1, 4, 7\}$, and $C \cup D = \{1, 2, 4, 5, 6, 7, 8, 9\}$, What are the sets C , D , and $C \cap D$. (12%)

3. Evaluate the sum of each of the following series.

(a) $\binom{2}{0} + \binom{2}{1} \cdot 2^1 + \binom{2}{2} \cdot 2^2 = ?$ (3%)

(b) $\binom{3}{0} + \binom{3}{1} \cdot 2^1 + \binom{3}{2} \cdot 2^2 + \binom{3}{3} \cdot 2^3 = ?$ (3%)

(c) $\binom{8}{0} + \binom{8}{1} \cdot 2^1 + \binom{8}{2} \cdot 2^2 + \binom{8}{3} \cdot 2^3 + \dots + \binom{8}{8} \cdot 2^8 = ?$ (8%)

4. About well-formed formula (wff),

(a) Complete the following truth table. (8%)

p	q	$\neg p$	$\neg q$	$\neg(p \vee \neg q)$	$\neg(p \vee \neg q) \rightarrow \neg p$
T	T				
T	F				
F	T				
F	F				

(b) Determine whether $\neg(p \vee \neg q) \rightarrow \neg p$ is *satisfiable* or not. (4%)(c) Similarly, determine whether $(p \wedge q) \rightarrow p$ is a *tautology* or not. (6%)

背面尚有試題

