

南華大學九十六學年度 碩士班 招生考試試題卷

系所別：資訊管理學系碩士班

科目編號：8404-3

科目：離散數學

試題紙第 頁共 頁

1. Let $G = (V, E)$ is a connected graph with $|E| = 17$ and $\deg(v) \geq 3$ for all v in V , what is the maximum value for $|V|$ (10%)
2. Given an infix form: $((A+B)*C+D)*E - ((A+B)*C+D)$. (15%)
 - (a) Find a binary tree to the expression.
 - (b) Find its prefix form and postfix form.
3. (Lagrange 定理) 證若 $(G, *)$ 為一有限群, 且 $(H, *)$ 為其一子群, 則 $|H|$ 整除 $|G|$ (20%)
4. 試排列 a, b, c, d 之各種情形並解釋 $4P2$ 與 $4C2$ 之異同 (20%)
5. Show that if $(ab)^2 = a^2b^2$ for a and b in a group G , then $ab = ba$. (10%)
6. (a) What is the last digit in 3^{55} ? (7%)
(b) What is the last digit in 9^{2007} ? (8%)
- 7 舉例說明 “證明若 P 則 Q , 和 證明若非 Q 則非 P 是一體兩面 (if and only if)” (如, P 為今天下雨, Q 為我就去游泳) (10%)