

# 南華大學九十五學年度 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：A3-09-08

科 目：資料結構

試題紙第 1 頁共 1 頁

每題 20 分，總分 100 分。

1. What a minimum-cost spanning tree of a graph? Please write an algorithm for minimum-cost spanning tree and analysis the time complexity of the algorithm.
2. Write the status of the list  $F = (12, 2, 16, 30, 8, 28, 4, 10, 20, 6, 18)$  at the end of each phase of Heap Sort.
3. Please draw a directed graph with six vertices and ten edges. Give two kinds of data structures to store the graph. Please show the representations of the graph by the data structures.
4. What is a min-heap tree? Write an algorithm to insert an element into a min-heap. Please analysis the time complexity of your algorithm.
5. What is a hash function? Please give two kinds of uniform hash functions. An *overflow* is said to occurs when a new identical  $I$  is mapped or hashed by the hash function into a full bucket. Please give a way to handle overflows.