

系所組別 製造資訊與系統研究所乙組

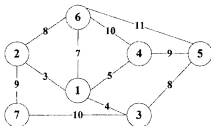
考試科目 計算機概論

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※ 考生請注意 · 本試題  可  不可 使用計算機

- True/false questions: (16%)
  - Java is an object-oriented programming language. (True/False)
  - SQL is an object-oriented programming language. (True/False)
  - UNIX is a multi-programming operating system. (True/False)
  - $2FB4_{16} = 50531_7$ . (True/False)
  - $01101010 + 01010011 = 11000101$ . (True/False)
  - the speed of SRAM is faster than DRAM. (True/False)
  - Thin-film transistor technology is commonly used in Active matrix LCD. (True/False)
  - IEEE 1394 is a new CPU. (True/False)
- Definition and explanation: (30%)
  - Define "polymorphism" in OO programming and give an example. (6%)
  - Define "encapsulation" in OO programming and give an example. (6%)
  - Explain ER model and give an example. (6%)
  - What is metadata and what is the metadata of a file? (6%)
  - What is Turing Test? (3%)
  - What is Bluetooth? (3%)
- Suppose there is an integer array  $M(5, 8)$ , the address of  $M(0, 0)$ ,  $M(0, 3)$  and  $M(1, 2)$  are 100, 106, 120 respectively. What is the address of  $M(4, 5)$ ? (6%)
- Convert the following expression:
 

$(A+B)*D+E/(F+A*D)+C$  into postfix (5%)  
 $ABCDE++**EF*$  into infix: (5%)
- What is "deque"? (5%). Write a procedure for inserting at either end of a deque. (15%).
- Use Prim's algorithm to find the Minimal spanning tree of the following graph.  
**Illustration of each step is required.** (8%)



- Show that "Heap sort" is an optimal sorting algorithm. (6%)
- What is the maximum number of entries that need to be checked during a binary search to a list of 2000 entries? (4%)