1. Answer the following two questions.
   (a) Write "Bubble sort" algorithm and "Insertion sort" algorithm, respectively. (10%)
   (b) How many comparisons are required in an n-element sorting problem using the "Bubble sort" algorithm? And, how about the case of the "Insertion sort" algorithm? (5%)

2. Let S be a 2-dimensional array. Assume the way to represent an array is in column-major order. The location of S(4,4) is 2066 and that of S(3,3) is 2044. This is a byte machine, and each element occupies two bytes.
   (a) What is the location of S(8,8)? (5%)
   (b) What is the number of rows of S? (5%)

3. How does the CPU execute each instruction? (10%)

4. List a table to discribe the differences among EDP(Electronic Data Processing), MIS(Management Information System), and DSS(Decision Support System). (15%)

5. Explain the principle of Hashing Searching. How does it happen the "Collision"? How to resolve the "Collision"? (15%)

6. Explain the "Parity Check". Can it completely detect the error bit? Why? (10%)

7. What's different between PE3 and dBase3 packages? (10%)

8. Explain the following terms. (15%)
   (a) Integrated Services Digit Networks(ISDN)
   (b) Distributed Processing System
   (c) Index Register Address Mode
   (d) Communication Protocal
   (e) E-mail