1. What are the packet and circuit switching techniques, also give some examples for them? Compare them with the advantages and disadvantages. Describe which one will dominate the networking in the future. (15%)

2. Please write a sorting algorithm pseudo code? As you known there are several sorting algorithms, describe which sorting algorithm is the fastest one, and the reason why that is the fastest one? (15%)

3. Fill the results of the following C statements in the blanks. (10%)
   ```c
   #define PRINTX printf("%d\n", x)
   void main(void)
   {
     int x=4, y,z;
     x *= 3 + 6; PRINTX(x); // _________
     x *= y = z = 5; PRINTX(x); // _________
     x = y == z; PRINTX(x); // _________
     x == (y == z); PRINTX(x); // _________
   }
   ```

4. \((-2)^3 \times (101011.0011101)_2\) \rightarrow \(\underline{\underline{\text{Excess}127 \text{ floating point format}}}\) 
   \rightarrow (\underline{\underline{\text{value}}} )_{10} \quad (10\%)

5. (a) Explain “Time Complexity”? (2%) 
   (b) Why it is important to a program? (3%) 
   (c) Please write a “searching” pseudo code. (5%) 
   (d) Analyze the time complexity of your searching program. (5%)

6. From the views of software and hardware, please specify your methods to improve a computer system performance. (10%)

7. Please explain the major characteristics of the following data structure: 
   (a) queue (3%) 
   (b) tree (3%) 
   (c) array (3%) 
   (d) stack (3%) 
   (e) link list (3%)

8. (a) Explain the major features of a mobile device such as PDA, or notebook computer. (5%) 
   (b) Give some reasons why many notebook computer manufacturers will choose Intel’s Centrino chip. (5%)