淡江大學九十二學年度進修學士班轉學生招生考試試題

系別：資訊工程學系三年級　　　科目：資　訊　概　論

准帶項目請打「○」否則打「×」	
.	簡單型計算機

本試題共　／　頁

1. The **IEEE** standard single-precision floating –point operand format consists of 32 bits. The sign occupies 1 bit, the exponent has 8 bits, and the fraction occupies 23 bits. The exponent bias is 127 and the base is 2. There is an implied bit to the left of the binary point in the fraction. Using the IEEE format described above to
   (a) code the floating number 10.5. (10%)
   (b) decode the bit pattern represented by the hexadecimal notation 33B22664. (10%)

2. Describe the difference between the following terms in your own words:
   (a) main memory and control memory; (10%)
   (b) machine instruction and microinstruction. (10%)

3. Describe four different programming paradigms in your own words. (20%)

4. Describe a data structure suitable for representing
   (a) a binary tree; (10%)
   (b) a board configuration during a chess game. (10%)

5. How many comparisons does the insertion sort algorithm require to sort a list of 100 data items? (10%) Also, compute the complexity of the insertion sort. (10%)