

## 《SE-122 程序设计 I》期末试题答案(A)

### Section I: Single Choice (20 points)

1-5: (D) (A) (D) (A) (C)

6-10: (B) (B) (C) (A) (A)

### Section II: Short Answer (40 points)

1. (1) Call by value: copy of argument passed to function, and changes in function do not effect original; Call by reference: passes the original argument, and changes in function effect original.

Example:

```
void add(int a){ a++; }  
void add(int *a){ (*a)++; }
```

- (2) Members of a union share space; while those of a struct do not; size of union is the size of largest member in the union, while size of struct is the sum of the size of all members in the struct (possibly with struct padding).

Example:

```
struct test1 { int x; char y; }  
union test2 { int x; char y; }  
sizeof(test1)=8, and sizeof(test2)=4.
```

2. (1) count < 10  
(2) continue  
(3) count++  
(4) (float)sum/count
3. (1) j = 0; j < mid - i - 1; j++;  
(2) j = 0; j < 2\*i+1; j++;

4.

```
1. int count_digits( const char* s ){  
2.     int count = 0;  
3.     for( ; *s++; )  
4.         if( *s >= '0' && *s <= '9' )  
5.             count++;  
6.     return count;  
7. }
```

5.

```
1 void print_binary( int x )  
3 {  
4     int i=0, j, u, a[32];  
5     do{  
6         u = x/2;
```

```

7      a[i++] = x%2;
8      x = u;
9      }while( x>=1 );
10
11     for( j=i-1; j>=0; j-- )
12         printf("%d", a[j]);
13     printf("\n");
14 }

```

Note: Marking standard for Question 4 & 5:

- 1) 50% if a student get the idea right.
- 2) One syntax error counts for 1 point.

### Section III: Program Output Analysis (20 points)

1. 00100000001
2. 6 7 8 8 9
3. 5 11 4 6

### Section IV: Program Error Correction (20 points)

1. (a) line 2: p is a pointer that points to a const value. No value assignment in line 3 is allowed. To correct it, remove 'const' in line 2.  
 (b) s is not initialized. Correction: char\* s; → char s[10];  
 (c) line 2: scanf("%d", a+3). line 3: a can not be l-value. Correction: merge it into line4 as printf("%s", \*(a+1));
2. (a) swap function is not declared before use. To correct it, add the following line before sort function: void swap(int\*, int\*);  
 (b) Inside swap function: int temp = \*a; \*a = \*b; \*b= temp;  
 (c) line 36/37: need a function pointer; remove \*.  
 (d) line 12: int **cmp(int,int)** → **int (\*cmp)(int, int)**  
 (e) line 20: swap(a[j], a[j+1]) → swap(a+j, a+j+1) 或者 swap(&a[j], &a[j+1])