

淡江大學 105 學年度日間部寒假轉學生招生考試試題

系別：資訊工程學系三年級

科目：程式語言

17-1

考試日期：12月3日(星期六) 第1節

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本試題背面印刷

一、Given C program as follows. What will be printed on the screen? (20%)

```
1. #include <stdio.h>
2. void functionA(int*, int*);
3. int main(){
4.     int a = 5, b = 10;
5.     printf("Before call functionA: a=%d, b=%d\n", a, b);
6.     functionA(&a, &b);
7.     printf("After call functionA: a=%d, b=%d\n", a, b);
8.     printf("a*b=%d", a*b);
9.     return 0;
10. }
11. void functionA(int* a, int* b){
12.     int temp = *a;
13.     *a = *b * 5;
14.     *b = temp;
15. }
```

二、What are three main properties in OOP? Please answer the question and give examples to describe them. (20%)

三、Given C program as follows. Please implement bubbleSort() and binarySearch() functions. (20%)

```
1. #include <stdio.h>
2. int main(){
3.     int a[] = {60, 20, 50, 40, 30, 10};
4.     bubbleSort(a, 6); // Please implement the bubbleSort() function
5.     int target = 50;
6.     int b = binarySearch(a, 0, 5, target); // Please implement binarySearch() function
7.     if(b == -1) printf("Fail to find the target. ");
8.     else printf("The target is in the array ");
9.     return 0;
10. }
```

背面尚有試題

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四、The towers of Hanoi can be solved in three steps. Please write the three steps and implement the recursive function for towers of Hanoi using C language. (20%)

五、Please answer the following questions. (20%)

- (a) The decimal value of $146_{(8)}$.
- (b) Describe what typedef struct is.
- (c) Describe the difference between enum and struct.
- (d) Describe the difference between primitive data types and user-defined data types.
- (f) Explain the meaning of the statement "int* a = (int *) malloc(5*sizeof(int));".