# **Introduction to Computer Science and C Programming-Final**

2017/01/11

	ID:	Name:	
		pts Total, 30 min English word, you may ask the teaching assistant to assist yave and give you zero point if any suspicious behavior is for	
1. (5pts) True or Fa	alse (Please fill T/F	in the blank)	
		of a file fp into the array a, fa[0]), sizeof(a) / sizeof(a[0]), fp);"	T
2. "int a[3]=	={1};" represents the	e initial value of $a$ is $\{1, 1, 1\}$ .	F
3. Both float	ing-point numbers a	and strings can be tested in switch statements	F
	(int *) calloc(100 * s es a pointer to that an	sizeof(int));" will allocate 100 values of integer type, rray in <i>p</i>	F
5. In 2's Cor	nplement Notation S	System, n bits is able to represent decimal $+2^n - 1 \sim -2^n$	F
You will lose? pts	s till there is no pts t	(There may exist one or more than one answer. to lose for one wrong choice in each question)	
	-	oroduce the value 0? ABDE	
ANS:			
(A) 10 / 20 (B) ! 5 (C) 0    20		(D) 4 % 2 (E) 1 && 0	
(2) Which of the follo	ow statements are co	orrect? CDE	
(A) -1.375 in 8-b (B) Both <i>abc123</i> (C) For a variabl (D) " <i>while(n)</i> { statement in the	B and $123abc$ are value $i = 12345$ , the state. 3" executes the loop he loop body), inclu	point notation is 01011011. id variable names in C language. Hement "printf("%3d", i);" will show 12345 on the screen. In pody infinitely if $n$ is a nonzero number (without any break ding negative numbers. $n = (0) = (123)n$ "; ", then the return value of $n = (0) = (123)n$ "; ", then the return value of $n = (0) = (123)n$ "; ", then the return value of $n = (0) = $	
(3) Given an array de			
	"I 1 "I 1 "I 1 "I 1 "TAs	<pre>ove C Programming", ove Physics", ove Calculas", ove Linear Algebra", ove Digital Circuit Lab",   are handsome and beautiful!"};</pre>	·
	ng statements won't on the screen? ACD	cause a program crash and are able to <b>show exactly "I love C</b>	,
(B) puts(I_LOV) (C) fprintf(stdou (D) printf("%s",	*I_LOVE_NCTUC E_NCTUCS); it, "%s", I_LOVE_N *(&I_LOVE_NCTU *I_LOVE_NCTUC	ICTUCS[0]); UCS[0]));	

## 3. (42pts) Notation Conversion

When changing the notation, the relative position of each number should not be changed. All the number in the expression is 1-digit natural number. The order of infix is just like arithmetic order.

( Prefix notation = Polish notation; Postfix notation = Reverse polish notation)

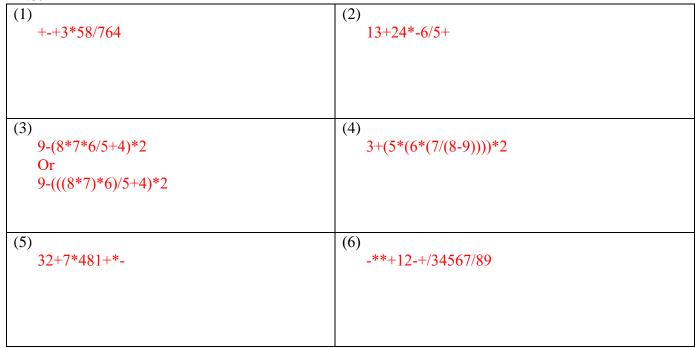
Example:

Infix:  $3+5 \Rightarrow Postfix: 35+ (53+ is wrong)$ .

Prefix: \*\*123 => Infix: (1\*2)\*3 or 1\*2\*3 (just choose one to write, and 1\*(2\*3) is wrong)

Figure 1.2.5 $\rightarrow$ minx. $(1.2)^{1.5}$ of $1.2^{1.5}$ (just choose one to write, and $1.(2.5)$ is wrong)			
(1) Infix to prefix	(2) Infix to postfix		
3+5*8-7/6+4	((1+3)-2*4)/6+5		
3.5 0 770.1	((1+3) 2 +1)/0+3		
(3) Prefix to infix	(4) Postfix to infix		
-9*+/**876542	356789-/**2*+		
-9.+/8/0342	330/89-/**2*+		
(5) D	(C) I. C. 4		
(5) Prefix to postfix	(6) Infix to prefix		
-*+327*4+81	(1+2)*(3/4+5-6)*7-8/9		

### ANS:



4. (16pts) Please identify the illegal assignment statements:

```
int main(){
   int a = 1, b = 2;
   int *p = &a;
   const int *q = \&b, n = 5;
   A) p = q;
   B)
       *p = 3;
   C)
       q = p;
   D) q = &a;
       *q = 4;
   E)
   F)
       n = b;
   G) a = b;
   H) a = n;
   return 0;
```

### **ANS:**

```
AEF
```

5. (16 pts) Which of the following statements may crash the program (incorrect memory operations)?

```
#include<stdio.h>
#include<stdlib.h>
int* fun1() {
   int arr[4] = \{1, 2, 3\};
   return arr;
}
int main() {
   int arr[4] = \{1, 2, 3\};
   int *p1, *p2, *p3, *p4;
   p1 = fun1();
    p2 = (int*) malloc(sizeof(arr));
    p3 = arr;
   p4 = p2;
    A) *p1 = 0;
    B) *p2 = 0;
    c) *p3 = 0;
    D) *p4 = 0;
    E) free (p1);
    F)
       free (p2);
       free(p3);
    G)
    H) free(p4);
   return 0;
```

### ANS:

```
A E G H
```