

# Exam#2 Sample Questions and Required Answer Format

# Exam #2: Specific Formats (1)

- Problem#1: true/false statements

- Examples:

T It is a good practice to close an input file when you need no further access to the file

F A file pointer is an *int* data type and can be declared with other *int* type variables

F In a *for* loop expression, the starting counter value must be smaller than the ending counter value

F The three loop expressions used in *for* loops must be separated by commas

Answer format



# Exam #2: Specific Formats (2)

- **Problem#2:** given a program with a set of errors, identify all the errors

- **Example** →

**Answer format:**

Line 1: ; should be removed

Line 2: int should be void, Main should be main

Line 4: File should be FILE

Line 5: = before NULL should be ==

Line 7: fprintf should be printf

Line 9: "my160file.txt" should be fp

Line 11: fprintf should be printf

```
1. #include <stdio.h>;
2. int Main(void)
3. {
4.     File *fp;
5.     if ((fp = fopen("my160file.txt","r")) = NULL)
6.     {
7.         fprintf("I was not able to open file\n");
8.     }
9.     if(fclose("my160file.txt") == EOF)
10.    {
11.        fprintf("I was not able to close file\n");
12.    }
13.}
```

# Exam #2: Specific Formats (3)

- **Problem#3:** given a program with a set of printf statements containing C expressions using standard library functions and user-defined functions, write down the output and show the relevant work.
- **Example** →

```
#include <stdio.h>
void main(void)
{
    float c, d;
    c=fabs(ceil(3.1) + floor(-100.3) + 12);
    1) printf(“%4.1f\n”, c);

    d=floor(ceil(10.7)-fabs(-2.0)+floor(-7.0))+sqrt(16)
    2) printf(“%3.1f\n”, d);
}
```

**Answer format:**

1) 85.0

**Justification:**

$c = \text{fabs}(4.0 + (-101.0) + 12)$   
 $= \text{fabs}(-85.0)$   
 $= 85.0$

2) 6.0

**Justification:**

$d = \text{floor}(11.0 - 2.0 - 7.0) + 4.0$   
 $= \text{floor}(2.0) + 4.0$   
 $= 2.0 + 4.0$   
 $= 6.0$

# Exam #2: Specific Formats (4)

- **Problem#4:** Given a correct program, determine the output of the program
- **Example** →
- **What is the output if you enter 1254?**

## Answer format:

The value of a before the function call is: 1254

The value of a after the function call is: 1258

```
#include "stdio.h"
void code( int *k);
void main(void)
{
    int a;
    scanf("%d",&a);
    printf("The value of a before the function call
is:%d", a);
    code(&a);
    printf("The value of a after the function call
is:%d", a);
}

void code(int *k)
{
    int lsd;
    lsd = *k%10;
    *k = *k + lsd;
}
```

# Exam #2: Specific Formats (5)

- **Problem#5:** given a set of requirements, write a complete C program
- **Example:** Write a program that generates two random numbers, one in the range 20 ~ 80, the other in the range 0~15 and print them on the screen.

Answer format:

```
#include <stdlib.h>
#include <stdio.h>
#include <time.h>

void main(void)
{
    int rand1;
    int rand2;

    srand(time(NULL));

    rand1 = rand()%61+20;
    rand2 = rand()%16;

    printf("The numbers are %d %d\n", rand1, rand2);
}
```

# Exam #2

- Time: **9:00am ~ 10:30am, Friday, March 24**
- Please arrive at the class on time; no make up time will be given for late arrivals.
- Form:
  - Open book, open notes
  - Calculators are NOT allowed
  - Visual Studio is NOT allowed
- Preparation:
  - Lecture notes #12 - #18 prepared by Dr. Xing (available on class website)
  - Homework #3 - #4
  - Lab #5 - #8

***Good Luck!***