

**2015.1 C Programming**  
**Midterm Exam [4/20 3pm-4:20pm(80minutes)]**

supervisor	
signature	

Student Id. : ( \_\_\_\_\_ ) , Name : ( \_\_\_\_\_ )

※ You may answer either in Korean or in English.

1. (15points) Given a positive integer number **n** as a user input (use scanf function for input), compute and print the product of odd numbers between 1 and **n**. You may assume that **n** is less than 20.

<pre>// Write your C code in this box. #include &lt;stdio.h&gt; int main() { } </pre>	<p>Input Example: 7</p> <p>Output Example: 105</p> <p>-----</p> <p>Input Example: 6</p> <p>Output Example 15</p>
---	--

2. (15 points) You can see a C program that prints a set of '\*' characters as below. Its input variable **n** is the total number of lines of the output. The input/output examples are as follows. Fill out all the blanks with appropriate C codes in the following program.

<pre>#include &lt;stdio.h&gt;  int main() {     int i,j,n;     scanf("%d",&amp;n);      for ((1) _____ ) {          for ((2) _____ ) printf(" ");          for ((3) _____ ) printf("*");         printf("\n");     }     return 0; } </pre>	<p>Input : 6</p> <p>Output :</p> <pre> * ** *** **** ***** ***** </pre>
---	---

3. (16points)

(1) when execute a statement `printf("%d", (29&19));`

what will be printed by `printf` function? ( \_\_\_\_\_ )

(2) For performance optimization, the  $(x \times 2^n)$  can be written as ( `x`  `n` ) in C code. Put appropriate C code in the above empty box.

4. (10 points) What does following C program print as an output result? ( )

```
#include <stdio.h>
int main()
{
    int y = 1, x = 5 , a = 0 , b = 7 , c = 3;
    y = (x == a) ? b : c ;
    printf("x = %d , y = %d\n" , x, y);
    return 0;
}
```

5. (14points) What is the value of x after executing following statements.

(1)

```
int x=3;
x *= 17>>2;
```

(Answer: x= )

(2)

```
float x=5.3;
int y=8;
x -= (--y)/2;
```

(Answer: x= )

6. (15points) Given the values of the int type variables x, y and z, write a program to rotate their values such that x has the value of y, y has the value of z, and z has the value of x.

```
// Write your C code in this box.
#include <stdio.h>
int main()
{
    int x, y, z;
    // <---- you may declare additional variables here.
    scanf("%d %d %d", &x, &y, &z);
    // put your code here

    printf("%d %d %d\n", x, y, z);
    return 0;
}
```

Input Example:  
7 3 10

Output Example:  
3 10 7

7. (15 points) what is the printf output of following C code. Write your answer in the following output box.

```
// Write your C code in this box.
#include <stdio.h>

int main()
{
    float sum = 0.0, j= 1.0, i=2.0;
    while (i/j > 0.05) {
        j = j+j;
        sum = sum + i/j;
        printf("%.6f \n", sum);
    }
    return 0;
}
```

Output : (Put your answer here)