

Student ID _____

CSE 5A

Name _____

Midterm

Signature _____

Summer 2004

cs5a _____

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This exam is to be taken **by yourself** with only your 1-sided notes, no electronic devices. Page 4 (22) _____

Operator Precedence Table

Total (84) _____

Operators					Associativity
- (unary)	++	--	!		right to left
*	/	%			left to right
+	-				left to right
<	<=	>	>=		left to right
==	!=				left to right
&&					left to right
					left to right
=	+=	-=	*=	/=	right to left

1. Using the operator precedence table above, evaluate each expression and state what gets printed.

```
int x;
int a = 15;
int b = 10;
```

```
x = a + b * 2 % 3 - b;
printf( "%d\n", x );
```

(3 pts)

```
int x;
int a = 15;
int b = 10;
```

```
x = b * 2 / 3 - 4 + a;
printf( "%d\n", x );
```

(3 pts)

2. What gets printed in the following blocks of statements?

```
int a = 6;
int b = 8;
int c = 19;

if ( (a > 5) && (b <= 8) && (c != 19) )
    printf( "True" );
else
    printf( "False" );
```

```
int x = -3;
int y = 0;
int z = x + 9;

if ( (z > 6) || (x >= y) || (z < y) )
    printf( "True" );
else
    printf( "False" );
```

(3 pts)

(3 pts)

3. Which of the following are valid C identifiers? (Circle your answer(s).) (6 pts)

C3PO

3D_Array

char

Show_Me_The_\$

floating

Give_Me_5

4. Fill in the blanks with the appropriate format specifiers to output the values correctly. (3 pts)

```
void
main( void )
{
    char a = 'K';
    int b = 10;
    float c = 12.5;

    printf( "a = %_____ \nb= %_____ \nc= %_____" , a, b, c );
}
```

5. What gets printed? (9 pts)

```
void
main( void )
{
    int num = 1;

    switch ( num + 6 )
    {
        case 1:
            printf( "A\n" );
            num = num + 2;

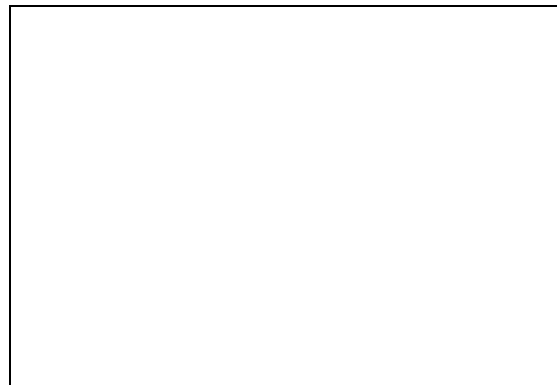
        case 4:
            printf( "B\n" );
            num = num + 4;
            break;

        case 7:
            printf( "C\n" );
            num = num + num;

        case 6:
            printf( "D\n" );
            num = num + 5;
            break;

        default:
            printf( "E\n" );
            num = num + 8;
            break;
    }

    printf( "num = %d\n", num );
}
```



6. Write an equivalent **for loop** for the following **while loop**. (10 pts)

```
i = 15;
while ( i > j )
{
    printf( "%d %d\n", j, i * j );
    --i;
}
```

Equivalent for loop

7. What gets printed in the following block of statements? (8 pts)

```
#define SIZE 8

int i;
int array[SIZE] = { 11, 7, 3, 4, 6, 2, -1, 5 };

for ( i = 0; i < SIZE; ++i )
    if ( array[i] <= 4 )
        printf( "%d\n", array[i] );
```

8. (14 pts)

```
#include <stdio.h>

void function1( int var1, int var2 );

int
main( void )
{
    int a, z;

    scanf( "%d", &a );    /* Read an integer as input */

    if ( a > 3 )
    {
        z = 4;
        function1( a, z );
    } else {
        z = 2;
        function1( z, a );
    }

    return 0;
}

void
function1( int var1, int var2 )
{
    int i = 0;

    while ( i < var1 )
    {
        printf( "%d", var2 );
        ++var2;
        ++i;
    }
}
```

What gets printed if the input is 1?

What gets printed if the input is 5?

9. What gets printed? (16 pts)

```
#include <stdio.h>

#define SIZE 7

int jenny( int x );

int
main( void )
{
    int array[SIZE];
    int i;

    for ( i = 0; i < SIZE; ++i )
    {
        array[i] = jenny( i );
    }

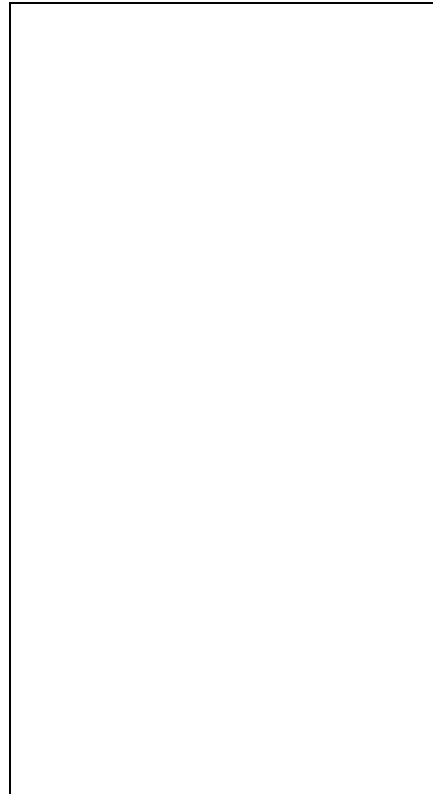
    for ( i = 0; i < SIZE; ++i )
    {
        printf( "%d\n", array[i] );
    }

    printf( "i = %d\n", i );

    return 0;
}

int
jenny( int x )
{
    int number[SIZE] = { 15, 13, 14, 12, 10, 7, 16 };

    return ( number[x] - SIZE );
}
```



Use the following to answer the questions below:

- A) Return Type
- B) Formal Parameter
- C) Function Prototype (Function Declaration)
- D) Actual Argument
- E) Local Variable
- F) Function Definition

What is `x` in `jenny()`? (2 pts) _____

What is `i` in `main()`? (2 pts) _____

What is the `int` in front of `jenny()`? (2 pts) _____

Scratch Paper