

CSE 1320.002

Name: _____

Exam 1 Date: 09-27-2013

Student ID: _____

Note:

- A. Five problems in total. Each problem is worth 20 points. Write as much explanation as you can, you can get partial credit for incorrect answers.
- B. CLEARLY indicate your answer on the exam. Scratch papers will NOT be graded.
- C. All scratch papers must be returned.

1. What does the following program print?

```
#include <stdio.h>
int alpha(int a);
int beta(int b);

int main(void)
{
    int i = 3;
    while(i < 16)
    {
        if( (alpha(i) && beta(i)) || (!alpha(i) && !beta(i)) )
            printf("%d_", i);
        i++;
        if (i==12)
            break;
    }
    return 0;
}

int alpha(int a)
```

```
{
    if(a%2 == 0)
        return a;
    else
        return 1;
}
int beta(int b)
{
    if(b%3 == 0)
        return 1;
    else
        return 0;
}
```

2. What does the following program print?

```
#include <stdio.h>

int my_fun (int a, int& b, int c) {
    a = 2*a+b;
    b = c;
    printf("In my_fun, a=%d, b=%d.\n", a, b);
    return a%2;
}

int main( ) {
    int x = 1;
    int y = -2;
    int z = 3;
    x = my_fun(x,y,z);
    printf("In main, x=%d, y=%d, z=%d.\n", x, y, z);
    return 0;
}
```

3. What does the following program print?

a.)

```
int x = 4;
do {
    printf("%d + ", x );
    x = x+3;
} while (x%4 != 0);
```

b.)

```
for (int i=10; i > 5; i--) {
    if ( i %2 == 0)
        printf("%d *", 2*i );
    else
        printf("%d - ", i );
}
```

4. What does the following program print?

```
#include <stdio.h>

int main()
{
    int a[4][5]={ {1,2,3}, {2}, {1,2,2,2,2}, {32,23}};
    int i,j;
    for (i=0;i<4;i++)
        for (j=0;j<4;j++)
            a[i][j]=a[i][j+1]+i*j+i+j;
    for (i=0;i<4;i++)
    {
        for (j=0;j<5;j++)
            printf(" %d",a[i][j]);
        printf("\n");
    }
    return 0;
}
```

5. The least common multiple (LCM) of two integers is the smallest number that is divisible by both those numbers. Write a function called LCM that takes two positive integers as input and return their least common multiple. For example, if $m = \text{LCM}(6, 8)$, then m equals 24.

```
int LCM (int a, int b)
```

```
{
```

```
}
```

6. Write a void function "number2grade" that takes a student's numerical score (4, 3, 2, 1, 0) as input and prints out the corresponding letter grade (A, B, C, D, E). If input numerical score is not one of (4, 3, 2, 1, 0), print out "INVALID SCORE.". Use switch statement.

For example, when call number2grade(4), it will print out "A"; number2grade(2), it will print out "C"; number2grade(2.5), it will print out INVALID SCORE."

```
void number2grade (int score)
```

```
{
```

```
}
```