1. What does the following program print?

```c
#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?

```c
#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 int m=LCM(6, 8), then m equals 24.

```c
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.”.

```c
void number2grade (int score) {

```

}