For each statement, describe the values of k for which the code in the {...} block is executed. (10)

A)
```
if( k > 5 && k < 10 )
    {...}
```

k = _____

B)
```
if( !k )
    {...}
```

k = _____

C)
```
if( k & 0x40 )
    {...}
```

k = _____

Hint: a certain bit needs to be in a given state for the code to be executed.
Note the bits in a 16-bit number are (15,14,13,12, 11,10,9,8, 7,6,5,4, 3,2,1,0)

D)
```
for( k = 0; k < 10; k+=2 )
    {...}
```

k = _____

E)
```
if( k | 0x20 )
    {...}
```

k = _____

Assuming we have a variable (***16-bit***) in our program named "Pattern", write the C code to perform the following masking operations (i.e. Pattern &= 0x01;). (8)

Note the bits in a 16-bit number are (15,14,13,12, 11,10,9,8, 7,6,5,4, 3,2,1,0)

A) Toggle bit 10

B) Force bits 3 and 6 to be high

C) Force bits 2 and 12 to be low

D) Force bits 2 to be high and bit 4 to be low.