**0. for marco double (x) x*x**

**What is the value when called double (2+3)?**

Pre-processing will not be on midterm this time

**1 Complete the following function with ONE line of code. The function converts the case of character argument. That is, if it is upper case, convert it to lower case, and convert it to upper case otherwise.** Hint: Use conditional operator

```
int convertCase(int character){


}
```

Conditional operator will not be on midterm this time

**2. Consider the two programs which will be compiled together.**

```
int x  =5;

int y = 1;

void function (void)

{     x--;

      y++;

}
```

```
#include <stdio.h>

extern x;

extern y;

void function (void);

int main(){

   int y = 10;

   function();

   y += x;

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

   printf("y=%d\n",y)

}
```

**What would be the output of running the program?**

_____

**3. A function is always 'global' .** **True** **False**

**4. What is the value of 9/2*2.0? how many conversions here?**

**What is the value of 9* 2.0 /2? How many conversions here?**

**Question 5 library functions**

**What does this program do?**

```
#include <stdio.h>
#include<stdlib.h>
int main(int argc, char *argv[])
{       int i, n, n2;
        n = rand();
        do{
           n2 = rand();
        }while (n2 == n)
 }
```

We did not cover this.

**6. What happens when this program is run?**

```
#include <stdio.h>
#include <assert.h>
int main(int argc, char *argv[])
{     int i
      for(i=0;i<100;i++){
         assert(i< 50);
         printf("%d\n", i);
      }
}
```

We did not cover this.

**question 7**

- **Suppose you want to count the number of students in class, which is no more than 200.**

  **Is a** `signed char` **enough?**

  **Is an** `unsigned char` **enough?**

**Question 8**

**Consider a program that read a line of input from the users and output the reformatted version of the input. The input is in the form of** `name age wage grade` **where age is a integer literal, wage is a float literal and grade is a character literal of A~E. The input is reformatted to** `name*GRADE**newage***newWage`**, where GRADE is the capital case of grade, age is increased by 10, and wage is increased by 50%. Sample input and output:**

```
Enter name age wage and grade: lisa 20 1.2 b
lisa*B**30***1.8
```

**The program is partially implemented. Complete the program by adding no more than two lines of code.**

```
char inputs[100];
char name[10], int age, count = 0; float wage; char mark;
printf("input name age wage and grade:");
fgets (inputs, 50,stdin);
/* you can fill in no more than 2 lines of code*/



printf("%s", input);
```

**Question 9**

- **List at least 6 integer types defined in ANSI-C, as discussed in class.**

**Question 10**

- **What is the values in `arr` after the loop?**

```
int i=0, arr[6]={1};
while( i<4)
   arr[i++] = 3;
```

**Question 11**

- **Consider the following program. What is the output?**

```
#include <stdio.h>

int main() {
      int i; int j;
      int *p; int *q= &j;
      p = &i;

      *p = 10;
      *q = 30;

      printf("%d %d %d %d\n", i, j, *p, *q);
}
```

question 12.

```
int x; int *p = &x;

printf("%p  %p", p, p+1);
```

assume x is stored at memory 100, what is the output (assume %p in Decimal)?

**Solutions:**

Question 0

11

question 1

return islower(inputChar)? toupper(inputChar): tolower(inputChar);

question 2

4  14

question 3

True

question 4

8.0  2 conversions

9.0  2 conversions

question 5

Generate two distinct random numbers

question 6

Print 0 … 49 per line. Then the program aborts (terminates), and print out error messages saying ``a.out: assert.c:8: main: Assertion `x < 50' failed. Abort”

question 7

signed char is not enough

unsigned char is enough

question 8

sscanf(inputs, "%s %d %f %c", name, &age, &wage, &mark);

sprintf(inputs, "%s**%c**%d**%f", name, toupper(mark), age+10, wage*1.5);

question 9

(signed)int, (signed)short, (signed)long, unsigned int, unsigned short, unsigned long

question 10

3 3 3 3 0 0

question 11

10 30 10 30

question 12

100 104