KSU/CCIS/CS	CSC 215 Sect. 37635	Midterm Exam 2- Spring 15 1:30 Hours
Name: ..... ID:		

EXERCISE 1 Write True/ False **(/20pts)**

All the members of a structure can be of the same type	
It is not possible to combine the declaration of a structure type and structure variable.	
Two structures with the same members define two equivalent types.	
If there are fewer initializers than there are member variables in the structure, the remaining integer member variables are initialized to zero.	
The size of structure can be determined using sizeof operator	
The address operator & is applied to a structure variable to obtain its address	
The function fgets is used to read formatted input from a file.	
stderr appears on the screen even if the stdout is redirected.	
The return value of tolower('c') is the character 'c'	
The return value of isdigit(0) is nonzero.	

EXERCISE 2 Select the correct answer **(/10pts)**

1- Which of the following is **not** correct about the function **toupper?**

a) Translates characters to uppercase..
b) It converts an integer ch (in the range EOF to 255) to its uppercase value (A to Z; if it was lowercase, a to z).
c) Any character that is not lowercase is left unchanged.
d) The function returns 0 if the character is not an alphabet.

2- Which of the following is **not** correct about the function **strdup**?

a) Copies a string into a newly created location.
b) It makes a duplicate of string
c) It allocates space with a call to malloc. The allocated space is strlen(s) bytes long.
d) The user is responsible for freeing the space allocated by strdup when it is no longer needed

3- If b is a pointer to a structure, which of the following accesses its member variable var.

a) b->var;
b) b.var;
c) *b->var;
d) *b.var;

4- Given the following declaration: ***int var;*** Which of the following is the correct usage of fscanf?

a) fscanf(fid, "%d", &var)
b) fscanf("%d", &var)
c) var = fscanf(fid, "%d")
d) None

5- The value returned by strcmp('ABC','abc')

a) A positive number
b) A negative number
c) Zero
d) None of the above

EXERCISE 3 **(/20pts)**

1- Write the output of the following C program. (The ASCII for 'A' is 65 and 'a' is 97)

```
char str1[15];
char str2[15];
strcpy(str1, "abcdef");
strcpy(str2, "ABCDEF");
printf("The return value is %d", strcmp(str1, str2) );
```

2. Write the output of the corresponding segment of code

```
const char str[] = "The mouse jumped over the moon";
 const char ch = 'o';
 char *ret;
 ret = strrchr(str, ch);
 printf("The return value is: %s\n", ret);
```

3. Write the output of the corresponding segment of code

```
int var1 = 'Q';
 if( islower(var1) )
     printf("If" );
 else
    printf("ELSE" );
```

4. Write the output of the corresponding segment of code

```
char var = "9000";
printf("%d", atoi(var) );
```

5. Write the output of the corresponding segment of code

```
int var1 = 'Q';
 if( islower(var1) )
     printf("If" );
 else
    printf("ELSE" );
```

EXERCISE 4 **(/20pts)**

1- Declare a structure called **Account** with the following elements: **name** as character array of size 20, **aType** as a char and **creationDate** as a structure whose elements are day, month and year

2- Create a pointer to the structure **Account** (from previous question) called **pAccount**

3- Initialize the member in the structure pointed to by **pAccount** using the following values {“Ahmed”, ‘s’,{1,1,2015}}

4- Write a function that takes two pointers to files and copy the first file into the second one.

```
void filecopy(FILE *fpin, FILE *fpout)
{









}
```

EXERCISE 5 **(/30pts)**

Write a C program that implements the following requirements:

1- Creates a structure called point. The members are: **x, y** as **floats** (x and y represent the coordinates of the point)
2- Creates a structure called circle. The members are: **c** as **point** (the center of the circle) and **r** as **float** (the radius of the circle)
3- A function called **computeArea** that takes a structure of type circle and returns the area of the circle.
4- A **main** function with the following requirements: (you will have to read all the questions and decide which variables you need)
    a. Define a structure variable called **cir**.
    b. Open a file called "input.txt"
    c. Read each line from the file and save the input in the structure **cir**.
    d. Compute the area of the **cir** and print it to the screen**.**
    e. Repeat c and d until there are no new lines.

    Example of file input.txt(first number is x, second is y and third is radius)

    10.1 2.2 5.0
    10.5 10.2 6.2
    11.1 2.2 6.0
    6.5 14.2 6.2
    15.1 2.2 6.4
    19.5 10.2 8.2