CS 60 — Spring 2009
Quiz # 3 — Friday, May 8
WRITE ALL YOUR ANSWERS ON SPACE PROVIDED
ANSWER ALL QUESTIONS - TOTAL POINTS IS 50

NAME: _____

Part 1

Circle if the statement is True (T) or False (F). Each question is worth 1 point. Assume that the content of the file `abc.txt` is as follows:

```
northwest  NW  Charles Main      3.0  .98  3  34
western    WE  Sharon Gray       5.3  .97  5  23
southwest  SW  Lewis Dalsass     2.7  .8   2  18
southern   SO  Suan Chin         5.1  .95  4  15
southeast  SE  Patricia Hemenway 4.0  .7   4  17
eastern    EA  TB Savage         4.4  .84  5  20
northeast  NE  AM Main Jr.       5.1  .94  3  13
north      NO  Margot Weber      4.5  .89  5   9
central    CT  Ann Stephens      5.7  .94  5  13
```

1. { T or F } The command `grep -i nw abc.txt` prints the line(s)

   ```
   northwest  NW  Charles Main      3.0  .98  3  34
   southeast  SE  Patricia Hemenway 4.0  .7   4  17
   ```

2. { T or F } The command `grep nw abc.txt` prints the line(s)

   ```
   northwest  NW  Charles Main      3.0  .98  3  34
   southeast  SE  Patricia Hemenway 4.0  .7   4  17
   ```

3. { T or F } The command `grep "^n" abc.txt` prints the line(s)

   ```
   northwest  NW  Charles Main      3.0  .98  3  34
   northeast  NE  AM Main Jr.       5.1  .94  3  13
   north      NO  Margot Weber      4.5  .89  5   9
   ```

4. { T or F } The command `grep "5\.." abc.txt` prints the line(s)

   ```
   western    WE  Sharon Gray       5.3  .97  5  23
   southern   SO  Suan Chin         5.1  .95  4  15
   northeast  NE  AM Main Jr.       5.1  .94  3  13
   north      NO  Margot Weber      4.5  .89  5   9
   central    CT  Ann Stephens      5.7  .94  5  13
   ```

5. { T or F } The command `grep "[A-Z][A-Z] [A-Z]" abc.txt` prints the line(s)

   ```
   eastern    EA  TB Savage         4.4  .84  5  20
   northeast  NE  AM Main Jr.       5.1  .94  3  13
   ```

6. { T or F } The command `awk '{print $3}' abc.txt` prints the line(s)

```
Charles
Sharon
Lewis
Suan
Patricia
TB
AM
Margot
Ann
```

7. { T or F } The command `awk '/Suan/' abc.txt` prints the line(s)

```
southern   SO  Suan Chin         5.1   .95  4   15
```

8. { T or F } The command `awk '/Charles/{print $5}' abc.txt` prints the line(s)

```
3.0
3.0
```

9. { T or F } The command `awk '/\.9/{print $2}' abc.txt` prints the line(s)

```
NW
WE
SO
NE
CT
```

10. { T or F } The command `awk '{printf "Name: %-8s and Place: %9s\n", $4, $1}' abc.txt` prints the line(s)

```
Name: Main     and Place: northwest
Name: Gray     and Place:   western
Name: Dalsass  and Place: southwest
Name: Chin     and Place:  southern
Name: Hemenway and Place: southeast
Name: Savage   and Place:   eastern
Name: Main     and Place: northeast
Name: Weber    and Place:     north
Name: Stephens and Place:   central
```

Part 2

Circle the answer that you think is correct. Each question is worth 1 points.

1. Given `int a, b=2;` What is `a`
   (a) 0 (b) 1 (c) 2 (d) unknown
2. Given `int a, b[5]={40,41,42,43};` What is `b[2]`
   (a) 40 (b) 41 (c) 42 (d) unknown
3. Given `int a, b[5]={40,41,42,43};` What is `b[4]`
   (a) 41 (b) 42 (c) 43 (d) unknown
4. Given `int a, b[5]={40,41,42,43};` What is `b[5]`
   (a) 42 (b) 43 (c) 44 (d) unknown

5. Given `int a=5, *b=&a;` What is `*b`
   (a) 0 (b) 5 (c) unknown address (d) unknown int
6. Given `int a=5, *b=&a;` What is `b`
   (a) 0 (b) 5 (c) unknown address (d) unknown int
7. Given `int a[2]={5,6} *b=a;` What is `*b`
   (a) 5 (b) 6 (c) unknown address (d) unknown int
8. Given `int a[2]={5,6} *b=a;` What is `*(b+1)`
   (a) 5 (b) 6 (c) unknown address (d) unknown int
9. Given `int a[2]={5,6} *b=a;` What is `*(b+2)`
   (a) 5 (b) 6 (c) unknown address (d) unknown int
10. Given `int a[2]={5,6} *b=a;` What is `(b+1)`
    (a) 5 (b) 6 (c) unknown address (d) unknown int

Part 3

Write your answer in the white space. Questions are worth 5 points each.

1. Rewrite this code segment using `do .. while`

```
i = 0;
while(i<100) {
 sum += x[i];
 prod *= x[i];
 i++;
 }
```

2. What are the values of `i, j, k` at the end of the program for the values of `x` given below.

```
switch(x) {
  case 1: i++; break;
  case 2: j++;
  case 3: k++; break;
  case 4: i++;
  default: i=21; j=22; k=23;
  }
```

x	0	1	2	3	4	5
i						
j						
k						

3. After these declarations:

```
int i=3, j=5, *p = &i, *q = &j, *r;
double x;
```

What are the values of the following expressions?

Expression	Value
`p == (& i)`	
`*(*(&p))`	
`r = (&x)`	
`(((7 * (*p))) / (*q)) + 7`	
`(*(r =(&j))) *= (*p)`	

4. After these declarations:

```
int a[3][5]={{11,12,13,14,15},{21,22,23,24,25},{31,32,33,34,35}} ;
double x;
```

What are the values of the following expressions?

Expression	Value
`a[0][1]`	
`*(a[1] + 2)`	
`(*(a+2))[3]`	
`*((*(a+2))+4)`	
`*(&a[0][0] + 5*3 + 4)`	

5. After these declarations:

```
int i, j; int *p, *q;
```

Which of the following assignment expressions are legal?

Expression	Legal?
`p = &i`	
`p = &*&i`	
`q = &p`	
`*q = &j`	
`p = q`	
`i = &j`	
`i = (*&)j`	
`i = *&*&j`	
`i = (int) p`	
`i = *p++ + *q`	

6. Explain what the following program prints.

```
#include <stdio.h>

int z;

void f(int x) {
 x = 2;
 z += x;
}

int main(void) {
 z = 5;
 f(z);
 printf("z = %d\n", z);
 return 0;
}
```