S22 2D Arrays Assignment

1. Which of the choices below is the appropriate Java statement that declares and allocates a two-dimensional array of primitive integers with four rows and five columns? (5 pt)

   a. int array[4][5];
   b. int array[5][4];
   c. int array[][] = new int[4][5];
   d. int array[][] = new int[5][4];
   e. None of the above

2. Although we use the term "multidimensional arrays, a multidimensional array is really an array of _____. (5 pt)

   a. fields
   b. integers
   c. arrays
   d. loops

3. Which of the Java code samples below processes a two-dimensional array? (5 pt)

a.
```
int table[][];
table = new int[5][5];
int row;
int column;
for(row = 0; row < table.length; row++)
   System.out.println("Row: " + row + " Column: " + column);
   }
  }
}
```

b.
```
int table[][];
table = new int[5][5];
int row;
int column;
for(row = column; row < 10; row++)
  for(column = row; column < row = 10; column++);
   }
  }
}
```

c.
```
int table[][];
table = new int[5][5];
int row;
int column;
for(row = 0; row < 10; row++)
  System.out.println("Row: " + row + " Column: " + column);
   }
  }
}
```

d.
```
int table[][];
table = new int[5][5];
int row;
int column;
for(row = 0; row < table.length; row++) {
  for(column = 0; column < table[row].length; column++) {
   System.out.println("Row: " + row + " Column: " + column);
   }
  }
}
```

Section 22 2D Arrays Assignment

4. Which of the choices below is the appropriate Java statement(s) that declares and allocates a two-dimensional character array with three rows and five columns? (5 pt)

   a. char[][] matrix = [3, 5];
   b. matrix = new char[3, 5];
   c. int matrix = new char[3][5];
   d. char[][] matrix;
      matrix = new char[3][5];
   e. None of the above

5. Given: `int[][] values = new int[4][5]`
   Using the statement above, write a nested loop to set `values` as follows: (5 pts)

	[0]	[1]	[2]	[3]	[4]
[0]	1	2	3	4	5
[1]	1	2	3	4	5
[2]	1	2	3	4	5
[3]	1	2	3	4	5

```
for (int row = 0; row<values.length; row++){
  for (int col = 0; col<values[0].length;col++){
    values[row][col] = col+1;
  }
}
```

6. Given: `int[][] values = new int[4][5]`
   Using the statement above, write a nested loop to set `values` as follows: (5 pts)

	[0]	[1]	[2]	[3]	[4]
[0]	0	1	2	3	4
[1]	1	2	3	4	5
[2]	2	3	4	5	6
[3]	3	4	5	6	7

```
for (int row = 0; row<values.length; row++){
  for (int col = 0; col<values[0].length;col++){
    values[row][col] = col+row;
  }
}
```

7. Given: `int[][] matrix = new int[5][5]`
   Using the statement above, write a nested loop to set `matrix` as follows: (5 pts)

	[0]	[1]	[2]	[3]	[4]
[0]	1	0	0	0	0
[1]	0	2	0	0	0
[2]	0	0	3	0	0
[3]	0	0	0	4	0
[4]	0	0	0	0	5

```
for (int row = 0; row<values.length; row++){
  for (int col = 0; col<values[0].length;col++){
    if (row==col){
      values[row][col] = col+1;
    } else{
      values[row][col] = 0;
    }
  }
}
```