1. Boolean Algebra Simplify the following expression: $$A(\overline{AB}) + \overline{A}(\overline{A+B}) + A + \overline{B}$$	**1.**
2. Boolean Algebra Which ordered triples make the following FALSE? $$\overline{A}\ B\ C\ +\ A\ \overline{B}\ C\ +\ \overline{A\ B\ C}$$	**2.**
3. Data Structures What is the depth of the binary search tree for: **THECONSTITUTIONSTATE**	**3.**
4. Data Structures Given an initially empty queue and the following commands on the queue, what will the next popped item be? PUSH(L), PUSH(E), PUSH(S), POP(X), PUSH(M), PUSH(I), PUSH(S), POP(X), POP(X), PUSH(E), PUSH(R), PUSH(A), POP(X), POP(X), PUSH(B), PUSH(L), POP(X), POP(X), PUSH(E), POP(X), POP(X), PUSH(S).	**4.**

5. What Does This Program Do? - Arrays

5.

What is outputted when this program is run?

```
for i = 1 to 5
    for j = 1 to 5
        a(i,j) = int((i + j) / 2)
    next j
next i
for i = 1 to 5
    for j = 1 to 5
        if a(i,j) / 2 == int(a(i,j) / 2) then
            a(i,j) = a(i,j) / 2
        else
            a(i,j) = 2 * a(i,j)
        end if
    next j
next i
for i = 1 to 5
    for j = 1 to 4
        if a(i,j)  ==  a(i, j + 1) then
            a(i,j) = 0
        end if
    next j
next i
print a(1,5) + a(5,5)
end
```