

ISU CS Programming Assessment

Name: _____

CS class account: _____

Put all answers in the boxes. Nothing you write outside of the boxes will be counted. Did you bring an eraser?

1. Write a C program that prints all upper and lower case letters together with their ASCII values.

```
int main(int argc, char *argv[]) {
```

```
    return 0;  
}
```

2. Write a C program that reads a file from stdin one character at a time and prints to the screen only letters and whitespace (punctuation and digits are not printed).

```
int main(int argc, char *argv[]) {
```

```
    return 0;  
}
```

3. Write a loop that prints the maximum and minimum from a linked list. Use the variables declared below.

```
typedef struct node {  
    int number;  
    struct node *link;  
} NODE;
```

```
int main(int argc, char *argv[]) {  
    NODE *head, *ptr;  
    /* Assume that the list is somehow created here. */
```

```
    return 0;  
}
```

4. Write a function name leafCount that has the root of a binary tree as parameter, and which returns the number of leaf nodes in the tree. Use the following declaration.

```
typedef struct tree {  
    int data;  
    struct tree *left, *right;  
} TREE;
```

5. Write a C function named rotate that has an two unsigned int's as parameter. The function should rotate the first parameter by the number of bits indicated in the second parameter, and return the value. Note - the rotation should "wrap around" and should work correctly for any value of both parameters. For example, if the parameters are 0x12345678 (305,419,896) and 4, the function should return 0x23456781 (591751041).

