

# CS Assessment Test

Put all answers in the boxes. Nothing you write outside of the boxes will be counted. Did you bring an eraser? Print your name in the upper right hand corner of this page.

1. Write a C program that sums the squares of the odd numbers from 1 to 37.

```
int main()
{
    int n,sum;
```

```
    printf("%d\n", sum);
}
```

2. Write a C program that reads a file from `stdin` one character at a time and counts the number of times the lower case letter `x` appears.

```
int main()
{
    char c;
    int count;
```

```
    printf("%d\n", count);
}
```

3. Write a loop that prints the contents of the linked list starting at `head`, one number per line. Use the variables declared below.

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

int main()
{
    NODE *head, *ptr;

    /*
     Assume that the list is somehow created here.
    */
```

```
}
```

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

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

5. Write a C function named `reverse` that has an `unsigned short int` as parameter. The function should reverse the two bytes of the parameter and return the reversed value. For example, if the parameter value is `0x7f3a` (or `32570`), the function should return `0x3a7f` (or `14975`).

