1. Define the term “race condition” and give an example of where one occurs outside the computer in a domain other than cooking.
2. A *power series* is one way to compute (or estimate) the value of a function as the sum of an infinite sequence of terms. For example, the value of e^x can be computed as

$$e^x = \sum_{i=0}^{\infty} \frac{x^n}{n!} = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots$$

   a. Show how to use OpenMP to parallelize the following code for computing terms of this into the array t[i] assuming that the powers of x and the factorials are in the arrays xs[i] and f[i] respectively.

```
for(int i=0; i < k; i++) {
        t[i] = xs[i] / f[i];
}
```

   b. Write OpenMP code to calculate the sum of the first k terms of this series assuming that the t[i] values have already been computed as in the previous part.
3. The code fragment below worked in serial, but not once the OpenMP pragma was added. Explain the problem and show how to fix it.

```
#pragma omp parallel for
for(int i=0; i < n; i++) {
        cnt = 0;
        val = i;
        while(val > 1) {
                if(val % 2 == 0)
                        val = val / 2;
                else
                        val = 3*val + 1;
                cnt++;
        }
        ans[i] = cnt;
}
```