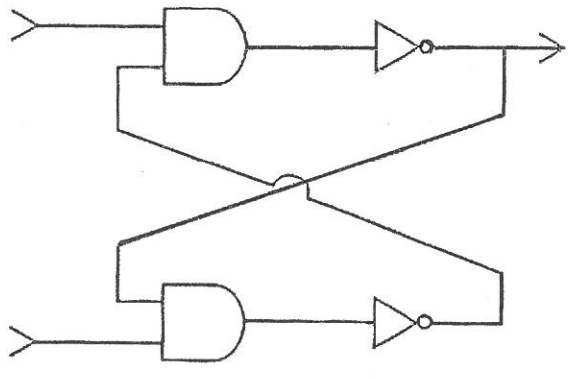
(Ten points for each question)

1. **Assume that** number **and** count **are** int **variables in the following java code statements. Describe the output produced for the following inputs:**
   (a) 5
   (b) -4

   1.
```
count = theKeyboard.readInt();
number = 0;
for ( ; ; )
{
    if (number > count) break;
    theScreen.println(number);
    number++;
}
```

   2.
```
count = theKeyboard.readInt();
number = 0;
for ( ; ; )
{
    theScreen.println(number);
    number++;
    if (number > count) break;
}
```

2. **Assume that both of the inputs in the following circuit are 1. Describe what would happen if the upper input were temporarily changed to 0. Describe what would happen if the lower input were temporarily changed to 0 thereafter. Redraw the circuit using NAND gates.**



3. **Please briefly describe the difference between a complex instruction set computer (CISC) architecture and a reduced instruction set computer (RISC) architecture.**

4. **If a typist types seventy words per minute (assume a word is with six characters), how much time would pass between typing each character? If a multiprogramming operating system allocated time slices in 10 millisecond units and we ignore the time required for process switches, how many time slices could be allocated between characters being typed?**

5. **Please differentiate the concepts of parallel processing, grid computing, web services and cloud computing.**

6. **How does cache memory speed up the computer?**

7. **How does CSMA/CD work? Explain why it cannot apply to wireless networks.**

8. **What is data remanence? Please explain why it is still possible to recover overwritten data.**

9. **Define data compression. Why is it still an important consideration for software developers nowadays?**

10. **When recording data on a multiple-disk storage, should the users fill a complete disk surface before starting on another surface, or should the users fill an entire cylinder before starting on another cylinder? Please explain why in details.**