CCC 1996 - reconstructed statement

This PDF was reconstructed by QOJ from the archived official HTML. It is not an original CCC PDF. The unchanged original HTML is available as an attachment.

Problem C: Pattern Generator

Input file: `pat.in`
Output file: `pat.out`

Write a program that repeatedly reads two numbers n and k and prints all bit patterns of length n with k ones in descending order (when the bit patterns are considered as binary numbers). You may assume that $30 >= n > 0$, $8 > k >= 0$, and $n >= k$. The first number in the input gives the number of pairs n and k. The numbers n and k are separated by a single space. Leading zeroes in a bit pattern should be included. See the example below.

Sample input

```
3
2 1
2 0
4 2
```

Sample output

```
The bit patterns are

10
01

The bit patterns are
00

The bit patterns are
1100
1010
1001
0110
0101
0011
```

QOJ adaptation notes

This is a faithful typeset reconstruction of the archived official HTML, not an original contest PDF. The original HTML is attached without changes.

Use standard input and standard output instead of the named input and output files. Blank-line differences are ignored; output tokens must otherwise follow the statement.

QOJ reconstructed scoring: the original independent test files are weighted equally for a total of 15 points. These weights are not claimed to be the historical CCC marking scheme. Each file is an all-or-nothing scoring group.