Лабораторная работа 2.

1. Для линейного автомата, определяемого матрицей А и вектором В:
   * построить эквивалентный регистр сдвига (записать рекуррентый закон, характеристический многочлен);
   * определить, является ли характеристический многочлен приводимым;
   * найти цикловую структуру состояний автомата (длины циклов и число циклов каждой длины).
2. Найти все функции де Брёйна от 4 переменных. Для каждой функции привести:
   * цикл вершин графа;
   * таблицу (истинности);
   * многочлен Жегалкина (и указать число одночленов);
   * коэффициенты Адамара–Уолша.
3. Найти 5 функций де Брёйна от 10 переменных. Для каждой функции привести:
   * таблицу (истинности);
   * многочлен Жегалкина (и указать число одночленов);
   * коэффициенты Адамара–Уолша.

Матрицы и векторы к п.1:

A1={{1,0,1,0,0,1,0,0,0,0,1,1,1,0,1,0,0,0,0},{0,0,1,0,0,1,0,0,0,1,1,1,0,1,1,0,1,0,0},{0,1,0,1,1,1,1,1,1,0,1,0,0,0,1,0,0,1,0},{0,1,0,0,1,1,1,0,0,1,1,1,0,0,1,1,0,1,0},{1,1,1,0,1,0,0,1,1,0,1,0,0,0,1,0,1,1,1},{1,0,0,1,0,1,1,0,1,0,1,0,0,0,0,0,1,1,1},{1,1,0,1,0,0,1,1,0,1,0,0,1,0,0,0,0,0,1},{1,1,0,1,1,0,1,0,0,0,1,0,1,0,1,1,1,0,1},{1,1,1,1,0,0,0,1,0,0,1,1,1,1,0,1,0,0,0},{1,1,1,0,0,1,0,1,0,1,0,1,1,1,0,1,1,0,1},{0,1,1,0,1,0,0,0,1,1,1,1,0,1,1,1,1,0,0},{0,1,0,1,0,1,1,0,0,1,1,1,0,1,0,1,1,0,0},{1,1,1,1,0,0,0,0,0,0,1,1,0,1,1,0,1,1,0},{0,1,1,0,0,0,0,0,1,0,0,1,0,0,1,1,0,0,0},{0,1,0,1,1,0,1,1,1,0,1,0,0,1,1,0,1,0,0},{0,1,1,0,1,0,1,0,1,1,0,1,0,0,0,0,0,0,0},{0,1,0,1,0,1,0,0,0,0,1,1,1,0,0,1,1,1,1},{0,1,0,0,1,1,1,1,1,1,0,1,0,0,1,1,0,0,1},{0,1,0,0,0,0,1,0,0,1,1,1,1,1,0,0,0,1,0}}

B1={1,1,0,1,1,1,1,0,1,0,1,1,0,1,1,1,1,0,1}

A2={{1,0,0,1,1,1,0,0,0,1,1,1,1,0,1,0,0,0,1},{0,0,0,0,1,0,0,1,1,1,0,0,1,0,0,0,1,1,1},{0,1,1,1,0,1,1,0,0,1,1,0,0,0,1,0,1,0,0},{1,1,1,0,0,0,0,0,1,0,0,1,0,1,1,1,0,0,1},{1,1,0,1,0,0,0,0,0,0,1,1,1,1,0,1,0,0,0},{1,1,1,0,0,0,0,0,0,0,1,0,1,1,0,0,0,0,0},{0,1,0,0,0,0,1,0,1,0,0,0,1,0,0,1,0,1,1},{0,0,1,1,0,0,0,1,0,1,1,0,0,0,0,1,0,0,1},{0,0,0,0,1,1,1,0,1,0,0,1,1,0,0,1,1,0,1},{1,1,0,0,0,1,1,1,1,0,0,1,0,0,0,1,1,0,1},{0,0,0,1,1,1,0,1,0,0,0,0,0,0,0,0,0,0,1},{0,0,0,1,0,1,1,1,0,0,1,1,1,0,0,0,1,1,1},{1,1,1,1,0,0,0,0,1,0,0,0,1,0,0,0,1,1,1},{1,0,0,0,1,1,1,0,0,1,0,0,1,0,0,0,0,0,0},{0,1,1,0,0,1,1,0,0,0,1,0,0,0,0,1,0,1,1},{1,1,0,1,0,1,0,1,1,0,1,0,0,1,0,1,1,0,1},{1,0,1,1,1,0,1,1,1,1,1,1,0,1,0,0,0,0,0},{0,1,0,1,1,1,1,1,0,1,0,1,0,1,1,1,1,1,0},{1,0,1,0,1,1,1,1,1,1,0,1,1,0,1,1,0,1,1}}

B2={1,1,1,1,1,0,0,1,1,0,0,0,0,1,1,0,1,0,0}

A3={{1,1,1,0,1,1,0,1,0,1,0,1,1,0,1,1,1,1,1},{1,1,0,0,0,0,1,0,1,1,1,1,1,0,1,1,0,1,1},{0,1,0,1,1,0,1,0,1,1,0,1,1,0,0,0,0,1,1},{0,1,1,0,0,1,1,1,0,1,0,1,0,1,1,0,1,0,0},{0,1,1,1,0,0,0,1,0,1,0,0,0,0,0,1,0,1,0},{0,0,0,0,0,1,0,1,0,0,1,0,0,0,0,0,0,0,1},{0,1,1,1,1,0,0,1,1,1,1,1,1,0,0,1,0,1,1},{0,0,1,1,0,0,1,0,0,1,0,0,0,0,1,0,0,1,0},{0,0,1,0,0,0,1,1,0,0,0,0,1,1,1,0,1,0,0},{1,1,0,1,0,1,0,0,1,1,0,0,1,1,1,1,1,0,0},{1,1,0,1,0,1,0,1,1,1,0,0,1,1,1,0,1,1,0},{1,0,1,1,0,1,1,0,0,1,0,0,1,1,0,1,0,0,1},{0,1,0,0,1,0,1,0,1,1,0,1,0,0,0,1,1,0,1},{0,1,1,0,1,0,0,1,1,1,1,1,1,1,0,1,1,0,0},{0,0,0,1,1,0,1,0,1,1,1,1,0,1,1,0,0,1,0},{1,0,0,0,0,0,1,1,0,0,1,1,1,1,0,0,0,1,1},{1,0,0,0,1,1,1,1,0,0,0,0,1,1,1,1,1,0,1},{0,1,0,1,0,1,0,1,0,0,1,0,1,0,0,1,0,0,1},{0,1,0,0,0,1,1,0,0,1,0,1,1,0,1,0,0,0,0}}

B3={0,0,1,1,0,0,0,0,1,0,0,1,0,1,0,1,1,1,1}

A4={{1,1,0,1,0,1,0,0,1,0,0,1,0,0,1,1,0,0,0},{1,0,1,0,1,0,1,0,0,1,1,0,1,0,0,0,1,1,0},{0,1,1,0,0,1,0,0,1,0,1,0,0,0,0,1,0,1,0},{0,1,1,0,1,1,1,1,0,1,0,0,1,0,0,1,1,1,1},{0,1,0,0,1,0,1,0,1,0,0,1,0,1,0,1,0,1,1},{0,0,0,0,1,1,0,1,0,0,0,0,0,0,0,1,1,1,0},{1,0,1,1,1,0,1,0,0,1,0,1,0,1,0,0,1,0,0},{0,0,0,1,0,1,0,1,0,0,0,1,1,0,1,0,1,0,1},{0,1,0,1,0,1,0,1,1,1,0,1,0,1,1,1,0,0,0},{0,1,0,0,1,0,1,1,1,1,0,1,1,1,0,0,0,0,1},{1,1,0,1,0,0,1,0,1,0,0,0,0,1,1,0,0,1,1},{1,1,1,0,0,1,0,0,0,1,1,1,0,0,0,0,1,0,0},{1,1,0,1,1,1,1,0,0,1,0,0,1,0,0,0,0,1,0},{0,0,1,0,0,0,1,1,1,1,0,0,0,1,0,0,1,1,0},{0,1,0,0,1,1,1,1,0,1,1,1,0,0,1,1,1,1,0},{1,1,1,0,0,1,1,0,1,0,0,0,1,0,1,0,0,0,0},{1,1,1,0,0,1,1,1,1,0,1,0,1,1,0,0,0,1,0},{1,0,0,1,1,0,1,0,1,0,0,1,1,1,1,0,0,1,0},{0,1,0,0,1,1,1,0,0,1,1,0,0,0,0,1,0,1,0}}

B4= {1,1,0,1,1,0,1,0,0,1,1,1,0,0,1,1,1,1,1}

A5={{1,0,1,0,0,1,0,0,1,0,1,1,0,1,1,1,1,0,0},{1,1,1,1,0,1,1,1,1,1,0,1,1,0,0,1,0,0,1},{1,1,0,1,0,0,0,1,1,0,1,1,0,1,1,1,1,0,0},{1,0,0,0,0,1,1,1,1,1,1,1,0,1,1,0,1,1,1},{1,1,0,1,0,1,0,0,1,0,0,1,0,1,1,0,1,1,0},{0,0,1,1,0,0,1,1,1,1,1,0,1,1,1,1,1,0,0},{0,0,0,1,0,1,1,1,1,1,1,0,0,1,1,0,0,0,1},{1,1,0,0,1,0,0,0,0,1,0,1,0,1,1,1,0,1,0},{1,1,1,0,1,0,1,1,1,0,0,1,1,1,0,1,1,0,0},{0,0,0,1,1,0,1,1,1,0,1,0,1,1,1,1,1,1,0},{1,1,0,0,1,0,1,0,1,0,1,1,0,1,1,1,0,1,0},{1,1,1,1,0,1,0,0,0,1,0,0,1,0,0,0,0,0,1},{0,0,1,0,0,0,1,0,1,0,1,1,0,0,0,0,1,1,1},{0,1,1,0,0,0,0,0,1,0,1,0,0,0,1,1,1,1,0},{0,0,0,1,1,1,1,0,1,1,1,1,0,0,0,0,0,1,0},{1,0,1,1,0,1,1,0,0,1,0,0,1,1,0,1,1,1,0},{1,0,0,1,1,1,1,0,1,1,1,0,1,0,1,1,0,0,0},{1,1,1,1,0,1,1,1,0,1,0,1,1,1,1,1,0,0,0},{1,0,1,0,0,1,0,1,0,0,0,1,1,1,1,0,0,1,1}}

B5= {0,1,0,0,1,0,0,0,1,1,0,1,0,1,0,1,1,0,0}

A6={{0,0,0,1,0,0,1,1,0,0,0,1,1,1,0,0,1,1,1},{1,1,0,1,0,1,1,0,1,0,0,1,1,1,1,0,0,0,1},{0,0,1,1,0,1,1,0,1,0,1,0,1,1,0,1,1,1,0},{0,0,1,0,1,0,0,0,1,1,0,1,0,1,1,0,1,0,0},{1,0,1,1,1,1,0,0,0,1,0,1,1,0,1,1,1,0,1},{0,0,1,1,1,1,0,1,1,1,1,0,1,1,1,0,1,1,0},{0,0,1,0,0,1,1,0,1,0,0,0,1,0,1,1,0,0,0},{1,0,1,0,0,0,0,0,1,0,0,1,0,0,1,1,0,0,0},{0,1,0,1,0,1,0,0,0,1,1,1,0,0,1,1,0,0,0},{0,0,1,0,0,0,0,0,1,0,1,1,0,1,0,1,1,0,1},{1,0,1,0,1,1,1,1,0,0,1,0,0,0,1,1,0,1,1},{0,0,0,1,0,0,1,1,1,1,1,0,1,0,1,1,1,1,0},{1,1,1,1,0,1,1,1,1,1,1,1,0,1,1,0,0,0,0},{0,0,1,1,1,1,0,1,1,1,0,1,0,1,1,0,0,0,1},{1,1,0,0,0,1,0,1,1,0,0,1,0,0,1,1,1,0,1},{0,0,1,0,0,1,1,0,1,1,0,0,0,1,1,0,0,0,0},{1,0,1,1,1,0,0,1,0,0,1,0,0,0,0,0,1,0,1},{0,1,0,1,0,1,0,0,0,1,0,1,0,0,1,0,0,1,0},{1,0,0,0,0,0,1,1,1,0,1,1,0,0,1,1,1,1,1}}

B6= {0,1,1,1,1,1,0,1,1,0,1,0,1,0,1,1,0,0,1}

A7={{0,1,0,1,0,1,1,0,0,0,0,0,0,0,1,0,0,1,1},{0,1,0,1,0,1,1,1,1,0,1,0,0,1,0,0,1,1,0},{0,0,0,1,0,0,0,0,1,0,1,1,0,0,0,1,1,0,1},{1,1,1,1,1,1,1,1,1,0,0,0,1,1,1,0,1,1,0},{1,0,0,1,1,0,0,1,0,0,1,1,1,0,0,1,0,0,1},{1,1,0,1,0,0,0,1,0,0,0,1,0,1,1,1,1,0,1},{1,0,0,1,0,0,1,0,1,0,0,1,0,1,1,0,1,1,0},{0,1,0,1,1,1,1,1,1,0,1,1,1,1,0,0,0,1,0},{1,1,1,0,1,0,0,0,1,1,1,1,1,1,0,0,1,1,1},{1,1,0,1,0,1,1,1,1,1,0,1,0,1,1,1,0,1,0},{0,1,1,1,1,0,1,1,1,0,0,0,0,1,1,1,0,0,1},{0,0,0,0,1,0,1,1,1,1,0,0,0,0,0,1,0,1,0},{0,0,0,1,1,1,0,0,1,0,0,0,1,1,1,0,0,0,0},{0,0,0,1,1,0,0,0,0,1,0,1,1,1,0,0,1,1,1},{1,0,1,1,0,1,1,0,0,0,1,0,0,0,1,0,1,0,0},{0,0,0,0,0,1,0,1,1,1,0,1,1,1,0,0,0,1,0},{0,0,1,0,0,1,1,0,0,1,0,0,0,0,0,0,0,1,1},{1,1,0,1,0,1,0,0,1,1,1,1,0,1,0,1,1,1,1},{1,1,0,1,1,1,0,1,1,0,1,0,1,1,1,0,1,1,1}}

B7= {1,1,0,1,1,1,0,0,1,1,0,1,1,0,0,1,1,1,0}

A8={{1,1,1,0,0,1,1,0,0,0,0,1,1,1,0,1,1,0,1},{1,0,0,1,0,0,0,1,1,1,1,0,0,1,1,0,0,1,0},{1,1,0,1,0,1,0,1,1,0,0,0,1,0,1,1,1,0,0},{0,0,1,0,1,0,0,1,0,0,1,1,1,0,0,1,0,0,0},{1,0,0,1,0,0,0,0,1,1,1,1,1,1,0,0,1,1,1},{0,0,0,1,0,0,1,1,0,1,0,0,0,0,1,1,0,0,1},{0,1,0,1,1,0,0,0,1,1,1,0,1,1,0,1,1,0,0},{1,1,0,0,1,0,0,1,1,1,1,0,1,0,0,1,1,1,0},{0,1,1,0,1,0,1,1,1,0,0,0,1,0,0,1,1,0,1},{0,1,1,0,1,1,0,0,0,0,0,1,1,0,0,1,1,1,0},{1,0,0,0,0,1,0,1,0,1,0,1,0,1,1,1,0,1,1},{1,1,1,1,0,1,0,1,0,1,1,1,0,0,1,0,1,0,1},{1,0,0,0,0,0,0,1,0,1,1,1,0,1,0,0,0,0,0},{0,0,1,1,1,0,1,1,1,0,0,0,0,1,0,1,0,1,1},{0,0,1,0,0,0,1,0,1,0,1,1,0,0,1,0,1,1,0},{0,1,1,0,1,0,1,1,0,1,1,0,1,0,1,0,1,0,1},{0,1,1,1,1,0,1,1,1,0,0,0,1,0,1,0,0,0,1},{1,0,1,0,0,0,0,0,1,1,0,0,0,1,0,0,0,1,1},{0,1,0,1,1,1,1,0,0,0,1,0,0,1,1,1,0,1,1}}

B8= {1,1,0,0,0,0,0,0,0,0,0,1,0,1,1,1,1,1,1}

A9={{0,0,0,1,0,0,1,1,1,0,1,1,0,1,0,0,1,1,1},{0,1,1,1,1,0,1,1,1,1,0,1,1,0,1,1,1,1,1},{1,0,0,0,0,1,1,0,1,1,0,0,1,0,1,0,1,1,0},{0,1,0,1,0,1,1,0,1,0,1,0,0,1,1,1,0,0,0},{0,0,0,0,1,1,0,0,1,0,1,1,0,0,1,1,1,1,1},{0,0,0,1,0,1,1,0,0,1,0,1,1,0,1,0,0,1,0},{0,1,1,1,0,1,0,1,0,0,1,1,0,1,0,0,1,1,0},{1,0,1,1,1,0,1,0,0,1,1,1,1,1,0,1,1,1,0},{1,1,0,0,1,0,0,1,0,0,0,1,1,0,0,0,0,0,1},{1,0,0,0,1,1,1,1,1,0,0,1,0,0,1,1,0,0,0},{0,0,1,0,1,1,1,0,0,0,1,0,0,1,1,1,0,1,0},{0,1,0,0,1,1,0,1,0,1,0,0,1,0,1,1,0,0,0},{1,0,0,0,1,0,0,1,0,1,0,1,1,0,0,1,1,1,1},{0,1,1,1,0,1,0,0,1,0,0,1,1,0,0,1,1,0,0},{0,0,0,1,1,0,0,1,1,1,0,0,0,0,1,1,0,1,0},{0,0,0,0,1,1,0,0,1,1,1,0,1,1,1,0,0,0,0},{0,1,1,0,0,1,0,1,1,1,1,1,1,1,1,0,0,0,1},{0,0,1,0,0,0,1,1,0,0,1,0,1,1,0,1,0,0,0},{1,0,1,1,1,0,0,0,1,0,0,0,1,0,1,1,1,1,0}}

B9= {1,1,0,0,1,1,1,0,1,1,1,1,1,1,1,1,0,0,0}

A10={{1,0,0,0,0,1,1,1,0,0,1,0,0,1,0,1,1,1,0},{0,0,1,0,1,0,0,1,0,0,1,0,1,1,1,1,0,0,0},{1,1,0,0,0,0,0,1,1,0,1,0,0,1,0,1,1,1,1},{0,1,0,1,0,0,0,1,0,1,0,1,1,0,1,0,0,0,1},{1,1,1,0,1,1,0,1,1,0,1,1,0,1,1,1,1,0,1},{1,1,1,1,1,0,0,1,0,0,1,1,1,1,1,0,0,1,0},{0,1,1,1,1,0,0,0,0,0,0,1,1,0,1,0,1,0,0},{1,1,0,1,0,1,0,1,0,1,1,1,0,1,0,0,1,0,1},{0,0,0,0,1,0,0,1,1,0,1,0,1,1,0,1,1,1,0},{1,1,0,1,1,0,1,0,0,1,0,0,0,0,0,0,1,0,0},{1,1,1,0,1,0,0,0,0,0,0,0,1,0,0,0,0,1,1},{0,0,1,1,1,0,1,0,0,1,0,0,1,0,0,1,1,1,0},{0,0,0,1,1,1,0,1,0,1,1,0,1,0,0,1,1,0,0},{0,1,1,0,1,0,1,0,1,0,1,1,0,1,0,1,0,1,1},{1,0,1,1,0,1,1,1,1,1,0,0,1,1,0,1,0,1,0},{1,1,1,0,1,1,1,1,1,0,1,1,0,0,0,0,1,1,0},{0,0,0,1,0,1,1,1,0,1,0,0,1,1,0,0,1,1,1},{1,1,0,0,1,0,0,1,0,1,1,1,0,0,0,0,0,0,1},{1,0,1,0,0,0,0,0,1,0,0,1,0,0,1,1,0,0,0}}

B10= {1,1,1,0,1,1,1,1,0,0,0,0,0,1,1,1,1,1,1}

A11={{0,0,1,1,0,1,0,0,0,0,1,1,0,0,1,1,0,0,1},{1,0,0,0,1,0,0,1,1,1,0,0,1,1,1,1,1,1,1},{1,0,1,0,0,1,0,1,0,1,1,0,1,0,1,1,0,1,0},{1,0,1,0,1,0,1,1,0,0,0,0,1,0,1,1,0,1,1},{0,0,0,1,1,0,0,1,0,1,0,0,0,0,1,1,1,1,1},{1,0,0,0,1,1,0,0,0,0,0,1,1,0,1,1,0,1,0},{0,0,1,0,1,1,0,0,1,0,1,0,0,0,0,1,1,1,1},{0,0,0,0,1,1,1,1,1,0,0,1,1,0,1,0,1,1,0},{1,1,1,0,0,0,0,0,0,0,1,1,1,1,1,0,0,1,0},{0,0,0,0,1,0,1,1,0,1,0,1,0,0,1,1,0,1,1},{1,1,0,0,1,0,0,0,1,1,0,1,0,1,0,1,0,1,1},{0,1,1,1,0,0,1,1,0,1,1,0,1,1,1,1,1,1,0},{1,1,0,0,1,1,1,1,0,0,1,0,0,1,0,1,1,0,1},{1,1,0,0,0,1,1,0,1,0,1,1,0,0,0,1,1,1,0},{0,1,1,1,0,0,1,1,1,0,1,0,0,1,1,1,0,0,1},{1,1,0,1,0,0,0,1,1,1,0,1,0,1,0,1,0,1,1},{1,1,0,0,1,0,1,1,1,1,0,0,1,1,0,0,0,0,1},{0,1,0,0,0,1,0,0,0,0,1,1,0,1,1,1,0,0,0},{0,1,0,1,0,1,0,0,0,0,1,1,1,0,0,1,1,0,1}}

B11= {1,0,0,1,0,0,1,1,0,0,1,1,0,1,1,0,0,0,1}

A12={{0,1,1,1,0,1,0,0,0,1,1,0,0,1,1,0,0,0,1},{1,0,0,0,1,1,1,1,1,0,1,1,0,1,0,1,1,0,0},{0,1,1,0,1,1,0,0,0,1,0,1,0,0,1,1,0,0,0},{0,1,1,1,1,0,0,1,0,1,1,0,0,1,0,1,1,1,0},{1,1,0,1,1,0,1,0,1,1,1,1,0,1,0,0,0,1,0},{0,0,0,1,1,1,1,0,1,1,1,0,0,0,1,0,1,1,0},{0,1,1,0,0,1,0,0,0,1,0,1,0,1,0,0,0,0,1},{1,0,1,0,1,0,1,0,0,0,1,1,1,0,1,0,1,0,0},{0,0,0,0,1,0,1,1,0,0,0,0,0,0,0,0,0,0,0},{0,0,0,0,1,0,1,1,1,0,0,0,0,0,0,0,0,0,0},{0,0,0,1,0,1,0,0,1,1,1,1,1,0,1,0,0,1,0},{0,0,0,0,0,0,1,0,0,1,1,1,0,1,0,0,0,1,0},{0,0,0,1,1,0,0,1,0,1,0,1,1,1,0,0,0,1,1},{0,0,1,0,1,0,1,0,0,1,1,1,0,0,0,0,0,0,1},{1,0,0,0,0,1,0,1,1,1,1,0,0,1,1,0,1,1,1},{1,1,0,1,0,0,0,1,1,1,0,0,0,0,0,0,0,1,1},{0,1,1,1,0,1,0,1,1,0,0,0,0,0,0,1,0,0,1},{0,1,1,1,1,0,1,0,0,1,0,0,0,1,1,0,1,1,1},{1,0,1,0,0,0,0,0,0,0,1,1,0,1,0,0,1,1,0}}

B12={1,0,0,0,1,1,0,1,0,1,0,0,0,1,1,0,1,0,0}

A13={{0,1,1,1,1,1,1,0,0,1,0,0,0,0,1,1,0,1,1},{1,0,1,1,0,1,1,0,0,0,1,1,1,1,1,0,1,0,0},{0,1,1,0,0,1,0,0,0,0,1,0,0,0,1,0,1,1,1},{1,1,0,0,0,1,0,0,0,1,1,0,0,0,0,1,0,1,0},{1,0,1,1,1,1,1,1,1,0,1,0,1,1,1,0,0,0,0},{0,0,1,0,1,0,0,0,0,0,1,0,1,1,1,0,1,1,1},{1,1,1,1,1,0,1,0,1,0,1,1,0,0,0,1,1,0,1},{0,0,0,0,1,1,0,1,0,0,1,1,0,0,1,1,0,1,0},{1,1,1,1,0,0,1,0,1,1,0,0,1,0,0,1,1,0,1},{0,0,0,0,0,0,0,0,0,0,1,1,0,0,1,0,1,1,1},{0,1,0,1,0,1,1,1,0,1,1,0,0,1,0,1,0,1,0},{1,1,1,1,1,0,1,1,0,0,0,1,1,1,0,0,0,1,1},{0,1,0,1,0,0,0,0,1,1,1,0,0,0,0,1,1,1,0},{0,0,1,1,1,0,1,0,1,1,0,1,1,1,1,1,1,0,1},{0,0,1,1,1,0,0,0,0,1,1,1,1,1,1,1,1,0,0},{1,0,1,1,0,1,1,1,1,0,0,0,1,0,0,1,0,1,1},{0,1,1,0,1,1,0,0,0,1,1,1,1,1,0,0,0,1,0},{1,1,0,1,0,1,0,0,0,1,0,0,0,1,0,1,0,1,0},{0,0,0,0,0,1,0,1,0,0,1,1,1,1,1,0,1,1,0}}

B13={0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,1,1}

A14={{0,1,0,0,1,1,1,0,0,1,1,0,0,0,1,1,1,0,0},{1,1,0,1,1,0,0,0,0,1,1,0,0,1,0,0,0,1,0},{0,0,1,1,1,1,0,0,0,0,0,0,1,0,1,1,0,1,0},{1,1,1,0,1,1,0,0,1,1,0,1,0,0,0,1,1,1,0},{0,0,0,0,0,1,0,0,0,1,1,0,1,1,1,1,0,1,0},{1,1,0,1,1,1,0,1,0,0,1,0,1,1,0,0,0,0,0},{0,1,1,0,0,0,1,0,0,1,0,1,1,0,1,0,0,1,1},{1,0,1,0,1,1,1,1,1,0,1,1,0,1,0,0,1,0,0},{0,1,0,1,0,1,1,0,1,1,0,0,1,1,1,0,1,0,0},{1,0,0,1,1,1,1,1,1,0,1,1,0,1,1,1,0,1,0},{0,0,1,1,1,1,1,1,1,1,1,1,0,0,1,1,1,0,0},{0,0,0,0,1,0,0,1,1,0,1,0,1,0,1,1,1,1,0},{0,0,1,0,0,0,0,1,1,1,0,0,1,0,0,0,0,1,0},{1,0,1,1,1,0,1,0,0,1,1,1,0,0,1,0,1,1,0},{0,1,0,0,0,1,0,1,1,0,0,0,1,0,0,0,0,1,1},{0,1,0,0,1,1,0,1,1,1,0,0,1,1,1,1,0,1,1},{0,0,1,0,0,1,1,0,1,0,0,0,0,0,1,0,0,0,1},{1,0,0,0,0,1,1,1,1,0,1,1,0,1,1,1,1,0,0},{1,0,1,1,1,1,0,0,1,0,1,0,1,0,0,0,0,1,1}}

B14={0,1,1,1,1,0,1,1,0,0,1,1,0,1,0,0,1,0,0}

A15={{1,1,0,0,0,1,0,1,1,1,1,1,1,1,0,1,1,1,0},{0,0,1,0,1,1,0,1,1,0,0,0,1,1,1,1,1,0,1},{1,1,1,1,1,0,1,1,1,1,0,1,0,0,1,0,0,1,0},{0,0,1,1,0,0,1,1,0,1,0,0,0,1,0,0,0,1,1},{0,1,1,0,1,0,0,1,0,1,0,1,1,0,0,0,1,1,1},{1,0,1,1,0,0,0,1,1,1,0,1,1,0,1,0,1,0,1},{1,1,0,1,0,0,1,0,1,1,0,0,0,1,1,0,1,0,0},{1,1,0,0,0,0,1,1,1,0,0,0,0,1,0,0,1,1,0},{0,1,1,1,0,1,0,1,0,1,0,1,1,0,0,0,1,0,0},{0,1,1,0,1,0,1,0,1,1,0,1,0,1,0,1,0,0,0},{0,0,1,0,0,1,0,1,0,1,1,0,0,1,0,1,1,0,1},{0,0,0,1,0,0,0,1,1,0,0,1,1,0,1,0,0,1,0},{1,1,1,1,0,0,1,1,1,0,1,0,1,1,1,1,1,1,0},{1,1,0,1,0,1,0,1,1,0,0,0,1,0,1,0,1,1,0},{0,0,0,0,1,1,0,0,0,0,0,0,1,0,1,1,0,1,1},{0,0,1,0,0,0,1,1,1,0,0,0,0,1,1,0,1,0,1},{0,0,0,1,0,0,0,0,0,1,1,0,1,0,0,0,1,1,0},{1,1,1,0,0,1,0,1,0,0,1,0,1,1,1,0,0,1,1},{1,1,0,0,0,0,0,1,1,1,0,0,0,0,0,1,0,0,0}}

B15= {1,1,1,1,0,0,1,1,1,0,1,0,1,0,0,0,1,0,0}

A16={{0,1,0,0,1,0,1,0,1,0,0,1,1,1,0,0,0,1,0},{1,0,1,0,0,0,1,1,0,1,1,0,1,1,0,1,1,1,1},{1,1,0,0,0,0,0,0,1,0,1,0,1,1,0,1,0,0,1},{1,0,0,1,1,1,1,1,1,0,0,0,1,1,1,0,0,0,0},{0,0,1,0,1,0,0,1,0,1,1,1,1,1,0,1,1,1,0},{1,0,1,1,1,0,0,1,1,0,1,0,0,1,0,1,0,1,0},{0,0,0,0,0,1,0,1,0,0,1,0,1,1,1,1,1,0,1},{0,1,1,1,1,0,0,1,0,0,1,0,0,0,1,0,0,1,0},{0,1,1,0,1,0,1,0,0,0,1,1,1,0,1,0,0,0,1},{1,1,0,1,0,1,1,1,1,1,1,1,1,1,1,0,1,1,1},{1,1,0,0,1,1,0,0,1,1,1,0,1,1,0,1,0,1,0},{0,0,0,0,1,1,1,1,1,0,1,0,1,1,0,1,0,1,0},{1,0,0,1,0,0,1,0,1,1,0,0,0,0,0,1,0,1,1},{0,0,1,1,1,1,1,1,1,0,0,0,1,1,1,0,0,1,1},{0,0,0,1,0,1,1,1,0,0,0,1,1,0,0,0,1,1,1},{1,0,0,0,1,1,1,0,1,0,1,0,1,1,0,1,0,0,1},{1,1,0,1,0,0,0,0,0,0,1,0,0,1,1,0,0,0,1},{1,1,1,0,1,0,1,1,1,1,1,1,0,0,1,1,1,1,1},{0,1,1,0,1,0,1,1,0,1,1,1,0,1,1,1,1,0,1}}

B16= {0,0,0,1,1,0,1,1,0,1,1,0,0,1,0,1,1,0,1}

A17={{0,0,0,0,0,1,1,1,1,0,0,0,1,0,1,1,0,0,0},{0,0,1,0,1,1,0,1,1,0,1,1,0,1,1,1,1,1,1},{0,0,0,0,1,0,1,1,0,0,0,1,0,0,1,0,0,1,1},{1,1,0,0,1,1,0,0,1,0,0,1,1,0,1,0,0,1,0},{1,1,0,0,1,0,0,0,0,0,0,0,0,0,1,0,1,0,0},{0,1,0,0,0,1,0,1,0,0,1,1,0,0,0,0,1,1,1},{0,1,0,1,0,1,1,1,1,1,0,0,0,0,0,1,0,1,0},{0,0,1,1,1,0,1,0,0,1,1,1,0,0,0,0,0,1,0},{1,0,0,1,1,1,1,0,0,1,0,1,0,1,1,0,0,1,1},{1,0,1,1,1,0,1,1,0,1,0,1,0,1,1,1,0,1,1},{0,0,1,0,1,0,1,0,0,0,0,0,1,0,0,0,0,1,0},{0,1,1,0,0,1,1,1,0,1,1,1,0,1,1,1,0,0,0},{1,0,0,0,1,0,1,0,1,1,1,1,1,0,1,0,0,1,1},{1,0,0,1,1,1,0,0,1,1,1,1,1,1,1,1,0,1,1},{0,1,1,0,1,0,0,0,0,0,0,0,1,0,1,1,0,1,1},{0,0,1,1,1,0,1,0,0,1,1,0,1,0,1,1,1,0,1},{0,1,0,0,0,1,0,1,0,1,0,0,0,1,1,1,1,0,0},{1,0,0,1,0,1,0,1,0,1,0,1,1,0,1,1,1,0,1},{0,0,0,1,1,1,0,1,0,1,1,0,1,1,1,0,0,0,0}}

B17= {0,1,1,0,1,1,1,0,0,1,0,1,1,0,1,0,1,0,1}

A18={{0,0,1,1,1,1,1,1,0,1,1,1,1,1,1,1,1,1,1},{0,1,1,1,1,0,0,1,1,1,0,0,0,1,0,0,0,1,0},{1,1,0,0,1,1,0,0,1,1,0,1,1,0,0,1,1,1,0},{0,1,0,1,0,0,0,0,0,1,0,1,1,1,0,1,1,1,1},{1,1,1,1,1,1,1,0,1,1,0,0,0,0,0,1,0,0,0},{1,0,0,0,0,0,0,0,0,1,1,0,0,0,0,0,0,1,0},{1,0,0,0,0,0,1,1,1,0,0,1,0,0,1,0,1,1,0},{1,0,0,0,1,0,0,1,0,0,1,0,0,0,1,0,1,0,1},{0,1,1,0,0,1,1,1,1,0,1,1,1,0,0,0,0,0,1},{0,0,0,0,0,1,1,0,0,0,1,1,0,0,1,1,1,0,1},{1,0,1,1,1,0,1,1,1,0,0,1,1,1,1,1,1,1,0},{0,1,0,1,1,0,1,0,0,0,0,1,0,1,1,0,1,1,1},{1,1,0,0,1,1,1,0,1,1,1,1,0,1,0,0,1,0,1},{1,1,1,0,1,1,0,1,1,0,1,1,0,0,0,0,1,1,1},{0,1,0,1,1,1,1,1,1,1,1,1,1,0,0,0,1,1,1},{1,0,1,0,1,0,0,0,0,0,1,0,0,1,0,0,0,0,0},{0,1,0,1,0,1,0,1,1,0,0,1,0,0,0,0,1,0,1},{1,0,1,0,1,0,0,0,1,1,0,1,1,0,0,1,1,0,1},{0,0,0,0,0,1,0,1,0,1,0,0,0,0,0,0,1,0,1}}

B18= {0,1,0,0,0,0,0,0,0,0,0,1,1,1,0,0,0,0,1}

A19={{1,0,0,1,1,1,0,0,1,1,1,1,0,0,0,1,1,0,1},{1,1,0,0,1,1,0,1,1,0,1,0,0,1,0,0,0,0,1},{0,1,0,1,0,0,0,1,0,1,1,1,0,1,1,0,1,0,1},{1,0,1,0,0,0,0,1,0,1,0,1,1,0,1,0,0,1,1},{0,0,0,0,0,1,0,1,0,0,1,1,1,0,1,1,0,1,0},{0,1,1,1,1,1,1,0,1,0,1,1,0,1,0,0,1,1,0},{1,1,0,0,1,1,0,0,1,1,1,0,1,0,0,0,1,0,1},{0,0,0,1,0,0,0,0,1,1,0,1,0,1,0,0,0,1,1},{1,1,1,0,0,0,1,1,0,0,1,1,0,0,1,0,0,1,1},{0,0,1,0,1,0,1,1,0,0,1,0,0,0,0,1,1,0,1},{0,0,1,1,1,0,0,1,0,1,0,0,1,1,0,1,0,0,0},{0,1,1,0,0,0,0,1,0,1,0,1,1,1,0,0,0,1,1},{1,0,1,1,1,1,1,1,1,1,0,0,0,1,1,0,0,1,0},{0,1,0,1,1,1,0,0,1,0,0,1,1,1,0,1,0,0,0},{1,0,0,1,1,1,0,0,0,1,1,1,1,0,1,0,0,1,0},{0,1,0,1,1,1,1,1,1,1,1,1,1,1,1,0,0,0,0},{1,0,1,1,0,1,1,1,1,0,0,1,0,1,0,1,1,1,0},{0,1,1,0,0,1,1,0,1,1,0,0,0,1,1,1,1,1,1},{1,1,1,1,0,1,0,1,1,0,1,1,1,0,1,0,0,0,0}}

B19= {0,1,0,1,0,0,0,0,1,1,0,1,1,0,0,0,0,0,1}

A20={{0,1,1,1,1,1,1,1,1,1,1,0,1,1,1,1,1,0,1},{1,1,0,0,0,1,0,1,1,1,1,0,1,0,0,1,1,1,1},{0,0,0,1,0,1,1,1,0,0,1,1,0,1,0,1,1,1,0},{0,0,1,0,0,1,0,0,0,1,0,1,1,0,1,1,1,1,1},{1,1,1,0,1,0,1,0,0,0,0,1,1,1,1,1,1,0,1},{0,0,0,0,0,1,0,0,0,0,0,1,0,1,1,0,0,0,0},{0,1,0,0,0,1,1,1,0,0,0,0,1,0,1,1,0,1,0},{0,1,1,1,0,0,0,0,1,1,1,1,0,0,0,1,0,1,0},{1,1,0,1,0,1,0,1,0,0,0,1,0,0,0,1,0,0,1},{0,0,0,0,0,1,0,0,1,0,0,1,1,0,0,0,0,0,1},{0,1,1,1,1,0,1,0,1,0,1,0,0,0,1,0,0,0,1},{1,1,1,0,0,1,0,0,0,0,0,0,0,0,1,1,0,1,1},{1,1,1,1,1,1,1,0,0,0,0,0,0,1,1,1,1,1,1},{1,1,0,0,1,0,0,1,1,0,1,1,0,0,0,0,0,1,1},{1,1,1,0,1,1,0,1,1,1,1,0,1,1,0,1,1,1,0},{1,1,1,1,1,0,1,0,1,0,0,1,0,0,0,0,1,1,1},{0,1,1,0,0,0,0,1,1,1,0,0,1,1,0,0,1,1,0},{0,1,0,0,0,1,1,0,0,1,1,0,1,1,0,1,1,1,1},{1,1,1,0,1,1,1,1,0,1,0,1,0,0,0,0,1,1,0}}

B20= {1,0,1,1,1,0,0,0,1,1,0,1,0,1,0,0,0,0,1}