Задание на лабораторную работу 3

Рассматривается комбинирующий генератор двоичной псевдослучайной последовательности, состоящий из 8 линейных регистров сдвига, выходные биты которых в каждом такте работы являются аргументами известной булевой функции. Значение функции от них является битом результирующей последовательности.

Требуется найти начальные состояния регистров, зная выходную последовательность, функцию и линейные рекуррентные соотношения, задающие функционирование регистров.

(\*вариант 1 списки коэффициентов ЛРП №№ 1,2,3,4,5,6,функция BF1 выходная п-сть Out1\*)

(\*вариант 2 списки коэффициентов ЛРП №№ 1,7,8,4,5,6,функция BF2 выходная п-сть Out2\*)

(\*вариант 3 списки коэффициентов ЛРП №№ 3,4,5,6,7,8,функция BF4 выходная п-сть Out3\*)

(\*вариант 4 списки коэффициентов ЛРП №№ 2,3,4,5,6,7,функция BF6 выходная п-сть Out4\*)

(\*вариант 5 списки коэффициентов ЛРП №№ 8,4,5,6,2,3,функция BF8 выходная п-сть Out5\*)

(\*вариант 6 списки коэффициентов ЛРП №№ 3,4,5,6,7,8,функция BF6 выходная п-сть Out6\*)

(\*вариант 7 списки коэффициентов ЛРП №№ 1,2,3,4,5,6,функция BF8 выходная п-сть Out7\*)

(\*вариант 8 списки коэффициентов ЛРП №№ 1,7,8,4,5,6,функция BF2 выходная п-сть Out8\*)

(\*вариант 9 списки коэффициентов ЛРП №№ 3,4,5,6,7,8,функция BF4 выходная п-сть Out9\*)

списки коэффициентов ЛРП:

coef1={1,0,0,0,0,0,0,0,0,1,0,1}

(хар многочлен )

coef2={1,0,0,0,0,0,0,1,0,1,1,1}

(хар многочлен

и т.д.

coef3={1,0,0,0,0,0,1,0,1,0,1,1}

coef4={1,0,0,0,0,0,1,0,1,1,0,1}

coef5={1,0,0,0,0,1,0,0,0,1,1,1}

coef6={1,0,0,0,0,1,1,0,0,0,1,1}

coef7={1,0,0,0,0,1,1,0,0,1,0,1}

coef8={1,0,0,0,0,1,1,1,0,0,0,1}

БФ в табличном виде

BF1={0,1,0,1,0,0,1,1,1,0,1,0,0,1,0,0,1,1,1,0,0,0,0,1,1,1,0,0,1,1,1,0,1,1,0,1,1,0,1,1,1,1,0,0,1,1,0,0,1,0,0,1,0,1,0,0,1,1,1,0,0,0,0,0}

BF2= {1,0,0,0,1,1,0,1,1,1,1,1,0,1,0,1,1,1,1,0,0,0,0,0,0,1,1,0,0,0,0,1,0,0,1,1,0,1,0,1,1,1,1,0,0,1,1,0,1,1,1,1,1,0,0,0,0,1,1,0,0,0,0,0}

BF3= {0,1,1,1,0,0,0,1,1,1,0,0,1,0,0,1,0,1,0,0,0,0,1,0,0,1,0,1,1,1,1,0,1,0,0,1,1,1,0,1,0,0,1,0,1,1,1,0,1,0,0,1,0,1,0,0,1,0,1,0,1,0,1,1}

BF4= {0,1,1,1,0,1,0,0,1,0,0,0,1,0,0,1,1,0,1,0,1,0,1,1,0,0,1,1,1,0,0,0,0,0,0,1,1,0,0,0,0,0,1,1,0,0,1,1,1,1,1,0,0,0,1,1,1,0,1,1,1,0,1,1}

BF5= {1,0,1,1,1,0,1,1,1,1,0,1,1,0,0,1,1,0,0,0,0,0,0,0,0,1,1,0,1,1,1,0,1,1,0,0,0,1,0,0,0,1,1,0,1,0,0,1,0,1,0,1,0,1,0,0,1,0,1,0,1,0,1,1}

BF6= {0,1,1,0,0,0,1,1,0,1,0,1,1,0,1,1,1,0,0,0,1,1,1,1,0,1,0,1,0,0,0,1,0,0,1,1,0,1,1,1,1,1,1,0,0,0,1,0,0,0,0,1,0,1,0,0,1,0,0,1,0,0,1,1}

BF7= {0,0,1,0,1,1,1,0,0,0,1,0,0,1,1,1,1,0,1,0,0,0,1,1,0,0,0,1,1,0,0,1,1,1,1,0,0,0,0,1,1,0,0,0,1,1,1,0,0,0,0,1,1,1,1,0,1,1,1,0,0,0,1,1}

BF8= {1,0,1,1,1,0,1,0,1,1,1,1,0,0,0,0,0,1,0,0,1,1,0,1,0,0,1,1,1,0,0,1,0,0,1,1,1,0,0,0,0,1,1,1,0,0,1,0,1,1,1,0,0,1,0,1,1,0,1,1,0,0,0,0}

Out1={5,10,3,13,6,1,5,8,2,8,0,10,12,2,0,10,4,7,4,7,10,12,11,13,14,10,2,1,6,13,0,13,9,15,15,2,10,0,12,9,10,14,15,9,9,2,9,7,2,8,1,5,3,15,8,13,9,15,11,4,14,4,6,15,7,0,2,0,4,3,6,13,14,15,13,9,13,12,3,10,0,0,14,9,1,0,8,1,3,14,13,0,10,15,12,13,2,12,15,14,13,6,3,9,11,11,3,6,15,1,7,14,6,2,14,15,6,4,13,4,11,11,8,1,11,14,2,8,12,6,0,6,13,0,14,1,13,10,6,3,7,3,4,10,3,15,9,9,12,9,10,7,9,4,6,4,14,4,14,3,14,1,10,3,13,9,13,1,7,2,6,13,8,8,13,12,0,8,14,10,10,11,14,2,10,11,9,13,0,12,5,9,15,5,0,11,6,6,8,4,15,13,12,3,11,14,1,3,13,6,2,7,9,3,11,13,13,4,0,11,12,2,11,3,14,7,9,2,11,10,5,7,0,12,14,2,12,13,13,0,5,3,3,9,15,3,12,1,7,2,3,9,3,0,5,8,1,7,0,6,15,0,10,6,1,13,1,4,7,0,1,11,11,15,1,10,1,6,9,3,2,10,5,4,14,9,10,3,15,6,7,10,12,7,7,6,5,15,9,15,11,7,1,7,15,12,7,0,3,10,1,12,2,4,4,6,1,5,11,9,2,1,1,3,8,2,9,13,8,15,8,12,8,11,14,7,3,14,5,6,2,15,9,8,4,4,0,14,0,14,0,10,12,0,14,2,3,13,14,11,12,2,8,14,5,6,7,6,1,14,1,13,4,6,2,8,1,6,11,2,15,1,13,5,6,0,8,4,2,0,4,0,15,10,0,7,11,11,2,9,15,0,5,5,0,9,4,3,9,11,13,14,6,3,4,11,3,11,0,8,7,6,2,9,4,6,9,1,0,14,4,15,14,5,4,9,9,1,1,11,15,8,7,8,0,7,6,10,0,2,4,10,4,11,13,11,1,0,7,15,6,6,10,6,8,8,2,13,12,6,4,0,8,0,2,13,0,0,1,13,13,6,15,0,13,4,12,11,14,13,14,9,9,6,13,7,5,10,15,9,6,11,9,11,2,0,8,13,12,7,0,12,11,4,7,10,12,2,11,0,5,0,1,5,8,4,1,4,8,14,8,15,5,9,7,11,13,4,4,2,13,10,1,11,3,15,14,5,4,1,9,3,5,13,15,3,2,5,2,14,5,0,2,10,7,15,1,11,3,15,6,9,12,8,13,14,14,0,4,0,8,6,13,11,13,15,11,3,11,8,7,4,0,1,13,2,2,1,0,2,7,13,10,1,5,15,9,10,5,9,15,13,10,12,7,3,7,6,6,13,14,2,15,12,12,5,13,14,12,9,10,9,7,7,0,3,7,12,5,1,8,12,0,13,10,1,12,3,11,4,12,6,14,6,9,4,7,15,3,3,9,3,4,15,2,8,12,9,12,9,12,7,12,3,4,7,11,3,10,2,14,4,13,11,1,1,11,8,1,1,13,5,5,7,12,5,5,7,3,10,1,8,11,3,14,10,1,6,12,13,0,9,15,11,8,7,7,12,2,7,10,12,4,15,2,7,7,11,10,8,1,7,8,5,6,7,12,15,2,5,7,4,10,14,1,9,12,5,9,11,10,0,10,6,7,3,14,7,8,2,14,4,7,2,6,0,11,0,2,14,0,13,14,1,4,12,3,10,2,8,14,0,3,7,7,14,3,4,2,13,2,6,5,4,10,9,13,3,4,7,14,12,15,5,8,14,14,12,11,15,3,15,6,14,2,15,15,8,14,0,7,4,3,8,4,8,8,12,2,11,7,2,4,2,2,7,0,5,3,11,1,15,1,9,1,7,12,14,7,12,10,12,5,15,3,0,8,8,1,12,1,12,1,5,8,1,12,4,7,11,13,7,8,5,1,12,10,12,14,12,3,12,3,10,8,12,5,0,2,13,6,5,14,3,10,10,12,1,0,8,4,0,8,1,15,4,0,15,7,6,5,3,14,0,10,10,1,2,8,7,3,7,11,12,12,6,9,6,7,6,1,0,14,12,5,2,8,13,2,2,1,12,9,15,12,10,9,3,2,2,3,7,15,0,15,0,0,14,13,4,0,4,9,4,9,7,11,6,2,0,15,14,12,13,4,13,1,0,5,11,8,12,8,1,0,0,5,10,0,0,3,11,10,13,14,1,10,9,9,7,13,11,13,3,2,13,10,14,11,5,15,2,13,7,3,6,4,1,1,11,8,14,1,9}

Out2={14,2,6,10,0,10,5,9,15,8,5,10,15,13,10,0,11,15,1,11,4,0,3,5,7,11,13,4,10,7,8,9,3,1,8,6,3,9,12,3,12,7,0,4,6,11,1,15,1,0,5,9,14,4,2,1,5,3,0,12,7,8,6,14,4,3,4,7,5,12,5,14,14,1,13,9,13,5,10,10,12,6,5,1,14,11,9,13,10,6,11,6,0,5,6,2,2,13,1,10,6,5,14,7,7,10,15,15,2,4,14,11,0,14,8,0,15,9,12,12,6,6,8,10,3,1,12,4,7,11,5,0,9,12,5,1,3,0,9,2,14,7,14,11,15,7,8,3,8,6,0,10,13,15,14,6,10,10,10,8,1,8,15,5,5,14,14,5,4,2,15,11,13,3,13,12,7,13,14,11,15,13,13,3,7,6,15,4,6,12,6,2,15,1,5,3,14,13,2,1,7,12,0,9,3,11,7,9,2,3,3,1,12,15,15,14,7,10,9,0,9,11,9,15,10,4,11,2,13,8,7,15,8,5,2,14,1,8,0,3,2,6,8,4,13,0,2,15,3,14,7,11,2,2,14,0,9,1,1,3,15,7,10,15,4,13,7,4,15,3,10,15,15,12,8,10,5,5,13,10,2,0,11,11,2,13,1,13,13,1,11,3,13,10,8,10,15,10,7,0,12,7,15,1,0,4,7,12,7,14,11,2,11,12,13,3,5,13,4,12,1,8,12,10,2,5,11,5,15,7,7,10,8,14,12,4,10,3,1,0,4,2,15,2,10,5,13,2,7,8,7,7,13,10,3,2,6,10,0,8,3,3,0,12,8,14,13,13,11,6,2,2,2,7,7,6,2,13,3,7,10,12,9,3,4,0,2,2,7,11,15,14,8,5,0,13,5,9,8,4,7,8,10,12,13,15,1,12,0,1,0,3,8,2,15,12,3,14,4,9,5,4,0,3,7,15,10,8,0,11,12,15,4,5,4,7,8,11,2,13,15,7,8,9,11,13,14,2,1,3,3,4,13,11,4,4,15,2,6,9,5,0,13,7,6,10,0,5,9,11,12,4,10,13,2,1,13,13,11,3,10,12,11,7,5,5,3,1,6,0,6,14,7,6,9,15,4,10,4,5,6,6,6,4,6,15,12,3,10,8,5,5,12,4,13,4,1,4,11,3,15,0,11,5,15,11,4,1,7,14,3,6,8,0,6,10,15,7,10,9,4,15,1,2,6,3,0,12,7,3,8,7,8,14,0,8,13,6,3,14,2,0,11,3,12,8,4,2,10,6,1,8,15,0,13,12,8,6,8,14,11,8,11,13,12,3,11,3,10,11,5,5,8,12,10,3,13,7,3,11,4,13,6,12,0,10,12,4,5,10,3,4,12,11,12,14,15,5,15,14,4,9,13,6,1,13,0,1,15,3,9,8,12,13,1,4,6,3,8,8,15,6,10,1,3,8,10,2,6,1,2,5,12,15,13,7,14,15,0,7,0,12,1,5,11,15,12,13,5,5,5,0,3,1,14,10,11,13,12,10,8,5,15,7,10,7,11,8,15,11,13,7,15,11,10,6,14,13,14,8,13,8,12,5,14,2,10,7,13,10,4,2,15,8,1,2,7,6,15,2,4,6,6,3,9,15,15,12,15,5,2,1,3,7,3,15,4,9,6,5,11,0,15,15,0,10,5,12,3,0,0,6,4,13,0,9,10,0,5,14,7,12,15,6,4,5,12,1,2,2,2,7,14,15,5,14,9,10,14,9,14,7,5,15,15,9,1,4,10,11,11,4,4,1,7,6,5,10,3,11,10,3,6,7,11,5,1,5,15,4,14,1,8,15,14,2,0,8,15,8,15,13,6,5,7,9,10,6,11,10,9,8,3,1,9,4,4,11,6,11,14,14,15,5,1,13,8,9,4,6,2,0,8,5,14,5,4,11,10,4,15,0,14,15,11,4,6,4,13,4,1,0,6,6,1,9,1,13,11,11,6,12,4,4,4,14,14,12,5,10,6,15,5,9,2,6,8,0,4,4,15,7,15,13,0,10,1,10,11,3,0,8,15,1,5,9,11,14,3,8,0,2,0,7,0,5,15,8,7,12,9,2,10,8,0,6,15,15,5,0,1,7,9,14,8,10,8,15,1,6,5,11,14,15,1,3,7,11,12,4,2,6,6,9,11,6,8,9,14,4,13,2,10,1,10,14,13,4,0,11,3,7,8,9,5,10,4,3,11,11,6,7,5,9,6,14,10,10,6,2,12,0,13,12,14,13,3,14,9,4,8,10,12,12,12,8,13,15,8,7,5,0,10,11}

Out3={4,6,2,13,4,15,10,5,1,3,5,15,10,9,4,3,2,6,4,3,8,7,10,14,9,5,15,2,0,7,13,0,3,2,10,0,12,0,12,13,7,0,7,6,13,12,3,5,11,7,1,5,12,7,6,4,8,13,11,3,2,6,14,12,8,9,8,7,4,8,2,3,7,8,0,13,6,14,3,8,2,4,1,4,11,5,13,15,8,4,6,13,5,11,4,0,9,13,15,14,13,1,1,1,2,1,5,7,6,4,7,8,15,6,12,10,12,8,5,14,6,8,13,12,4,10,0,7,4,3,11,15,15,15,14,2,3,10,13,0,12,11,7,3,1,7,11,12,4,10,10,8,6,3,6,8,10,2,13,6,3,13,2,15,8,8,3,13,9,6,6,6,15,7,13,14,7,8,15,10,2,0,3,7,0,8,8,13,15,9,1,11,5,1,12,10,13,12,0,2,13,11,13,11,6,4,5,5,9,0,0,11,6,15,0,1,6,2,0,3,6,5,11,9,4,5,12,1,14,5,12,3,5,14,2,8,4,9,7,2,4,2,5,0,9,14,6,10,10,14,3,12,15,15,10,1,8,2,9,8,15,6,1,8,13,5,7,3,1,12,1,13,14,10,7,5,4,14,8,2,7,11,12,12,5,12,14,14,6,8,11,12,8,2,13,15,2,2,1,8,12,9,5,8,15,6,12,10,12,1,1,13,12,15,1,12,9,6,13,6,10,11,13,12,9,5,12,1,15,14,1,13,10,2,8,13,1,1,5,2,5,1,2,12,15,9,15,2,8,3,0,6,11,14,13,6,5,2,12,4,13,7,7,11,9,1,14,6,12,13,14,0,10,14,1,6,12,13,13,14,12,11,4,15,14,7,4,11,5,2,10,9,8,8,1,15,5,12,11,3,15,0,11,12,7,6,8,5,10,6,12,7,10,13,10,8,6,1,2,4,7,5,11,2,13,11,6,14,10,5,12,14,4,12,6,5,3,11,10,9,4,1,15,0,5,1,10,14,2,9,8,1,6,8,3,2,14,15,9,13,10,2,5,1,0,12,1,13,5,7,13,4,12,5,11,3,3,3,12,0,12,5,6,6,10,4,2,10,9,7,2,6,1,1,10,15,8,5,7,1,7,1,5,13,9,3,11,12,14,9,5,0,8,12,5,10,9,15,4,10,2,6,11,15,5,2,8,6,4,12,8,7,0,15,5,13,2,11,14,4,0,15,10,0,6,5,4,1,8,1,9,10,14,0,14,13,11,8,6,11,6,14,2,11,8,14,12,9,1,11,6,6,4,13,13,9,1,3,0,14,9,0,4,6,15,0,1,10,13,12,7,0,4,8,2,9,6,11,11,15,0,8,13,10,11,6,8,1,3,11,15,13,10,2,2,2,4,2,10,14,12,8,15,1,14,13,9,5,9,0,11,12,13,1,11,8,9,4,0,14,8,7,7,15,15,15,12,4,7,5,10,1,9,6,14,6,2,15,7,8,9,5,5,0,12,6,13,1,4,5,10,12,7,10,5,15,1,0,7,11,2,12,12,13,14,15,11,12,15,1,15,4,4,0,6,14,1,1,1,11,15,2,3,6,10,3,9,5,11,8,0,5,11,7,11,6,12,8,10,11,2,0,1,6,13,14,0,2,12,4,0,6,12,11,7,2,8,11,8,3,12,11,8,6,11,12,5,0,9,2,14,4,8,4,10,1,3,12,13,5,5,12,7,9,15,15,4,3,0,5,3,1,14,12,3,1,10,10,14,6,3,8,3,11,13,4,14,10,9,13,0,4,15,7,9,8,11,9,13,12,13,1,7,9,0,5,11,14,4,4,3,1,9,2,11,1,14,13,9,5,8,2,3,11,9,14,3,9,2,13,10,13,5,7,11,9,2,11,8,3,15,12,3,11,4,5,1,10,2,2,10,4,10,2,5,9,15,3,14,5,0,6,0,13,7,13,10,12,10,5,8,9,10,14,15,7,2,3,12,13,9,11,12,1,5,12,2,13,9,11,11,13,9,6,9,15,12,14,9,6,10,5,5,3,1,0,3,14,11,9,6,7,14,1,7,8,14,13,0,11,4,13,8,15,5,11,5,0,12,2,4,8,14,11,6,5,11,6,13,13,4,11,9,12,9,8,12,10,7,7,5,2,8,3,14,0,10,3,5,12,5,3,0,2,13,0,6,5,13,15,3,11,4,4,10,2,1,8,3,10,10,15,10,9,8,11,6,6,6,7,8,1,8,10,12,13,4,8,5,5,2,14,4,12,2,3,5,15,0,10,14,2,14,2,11,11,2,7,7,9,13,2,10,1}

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