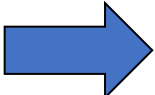


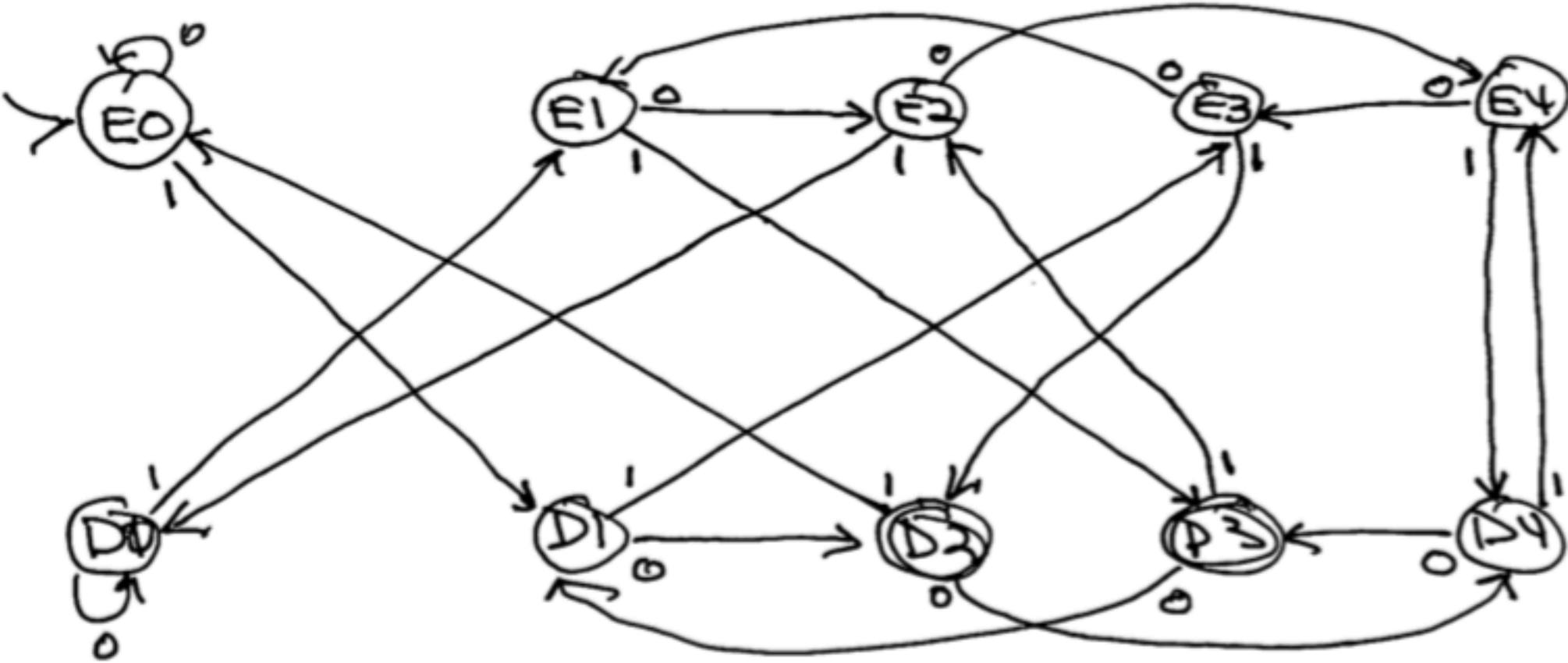
Assignment#3 Key

Assignment # 3.1

1. Write a deterministic finite-state automaton (DFA) that accepts strings over $\{0,1,2\}$. Each string represents a base 3 number read most significant to least significant digit. Accept those representing a number in base 10 that has a remainder of 1 or 3, when divided by 5. Thus, 1, 20, 102, 121 are in (each is $1 \pmod 5$), and 10, 22, 111, 200 are in (each is $3 \pmod 5$).

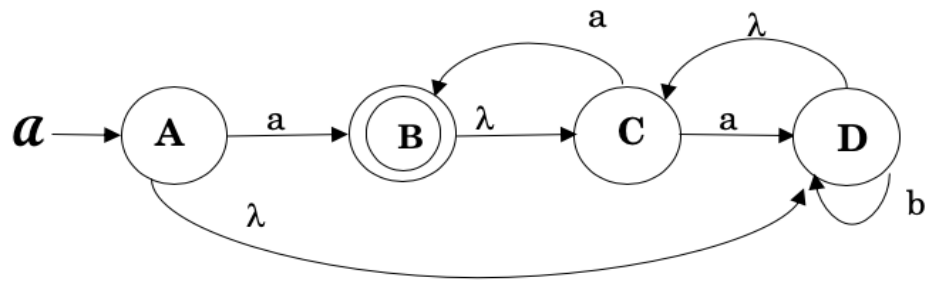
		0	1	2
				
Accept State	0 % 5	0 % 5	1 % 5	2 % 5
	1 % 5	3 % 5	4 % 5	0 % 5
Accept State	2 % 5	1 % 5	2 % 5	3 % 5
	3 % 5	4 % 5	0 % 5	1 % 5
	4 % 5	2 % 5	3 % 5	4 % 5

Assignment # 3.2



Assignment # 3.3

3. Use the standard conversion technique (subsets of states) to convert the NFA below to an equivalent DFA. Do not include unreachable states.



State	A	B	C	D
λ -closure	{A,C,D}	{B,C}	{C}	{C,D}

