HW #4
(ECE - 6750)

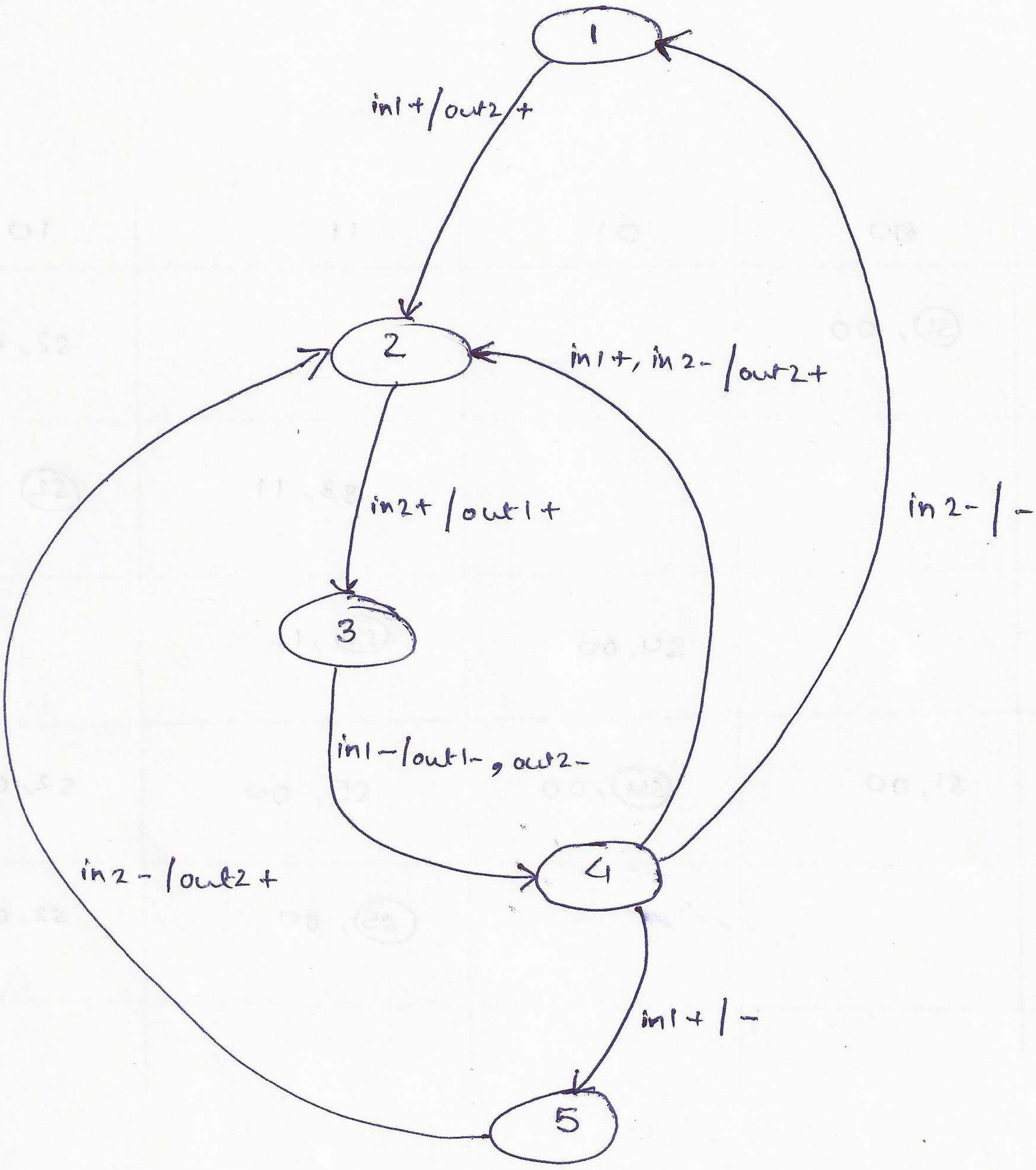
UTKARSH GUPTA
U0942827

4.1

4.1.1

	00	01	11	10
S1	(S1), 00			S2, 01
S2			S3, 11	(S2), 01
S3		S4, 00	(S3), 11	
S4	S1, 00	(S4), 00	S5, 00	S2, 01
S5			(S5), 00	S2, 01

4.1.2 in1, in2 / out1, out2.



4.2

4.2.1.

a) The BM machine doesn't satisfy the minimal set property because the input burst from state 2 to state 0 (b^-) is a subset of input burst from state 2 to state 1 (a^+, b^-).

(b) The BM machine doesn't satisfy the minimal set property because the input burst from state 2 to state 4 (a^+) is a subset of input burst from state 2 to state 1 (a^+, b^-)

(c) The BM machine doesn't satisfy the minimal set property because the input burst from state 2 to state 0 (b^-) is a subset of input burst from state 2 to state 1 (a^+, b^-).

(d) The BM machine doesn't satisfy the minimal set property because the input burst from state 2 to state (b^-) is a subset of input burst from state 2 to state 1 (a^+, b^-)

4.2.2

(a) Since it does not satisfy the necessary condition of minimal set it is not legal a BM machine.

(b) Same argument as part (a)
(Not a legal BM machine)

(c) Same argument as part (a)
(not a legal BM machine)

(d) same argument as part (a)
(not a legal BM machine)

4.3

abc = 000
yz = 01
} initial values

	000	001	011	010	110	111	101	100
0	⓪, 01	2, 00			1, 10			
1					①, 10		4, 11	
2		②, 00						3, 01
3							4, 11	③, 01
4		5, 01					④, 11	
5	0, 01	⑤, 01						

4.4

(i) The XBM doesn't satisfy the minimal set property because the compulsory transition (b^+) of the input burst from state 1 to state 3 is a subset of the input burst (a^*, b^+) from state 1 to state 4.

(ii) If the conservative set up requirement, that the value of conditional signal (d) is stable before ~~transitions of~~ the compulsory transitions (a^+, b^+ or a^+) occur, is holds true, then the XBM satisfies the minimal set property. Although the compulsory transitions violate the property themselves, but the presence of a stable signal d, clearly differentiates the two transitions.

iii) The XBM do satisfy the minimal set property as the presence of a stable signal d, differentiates the two transitions from state 0 to state 1 and from state 0 to state 2. But even though the XBM satisfies the minimal set property, it is not a legal XBM as a preceding transition on state 0 has a directed don't care(d^*) and a transition from state 0 has a as a compulsory transition.