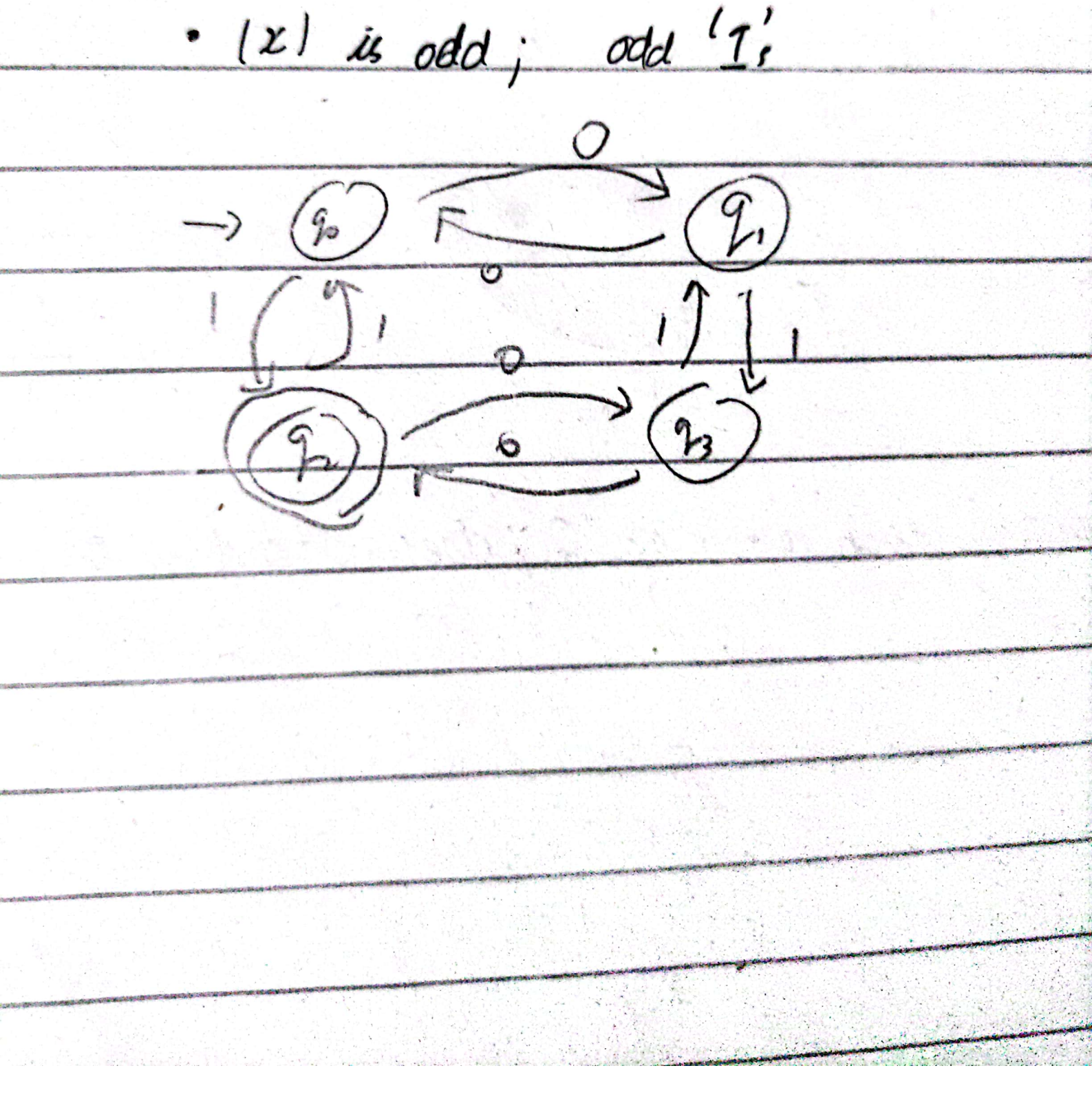
Q1

Language:1,100,010,001,10000,01000,00100,00010,00001,11100



Q5

Quiz Solution

National University of Computer and Emerging Sciences, Lahore Campus

Course:	Theory Of Automata	Course Code:	CS-3005
Program:	BS (Computer Science)	Semester:	Spring 23
Duration:	15 Minutes	Total Marks:	10+10
Paper Date:		Weight	
Section:		Page(s):	
Exam:	Quiz 1	Roll No.	

Instruction/Notes: Use back side of this ass for rough work. Write down final answers only in the given space provided.

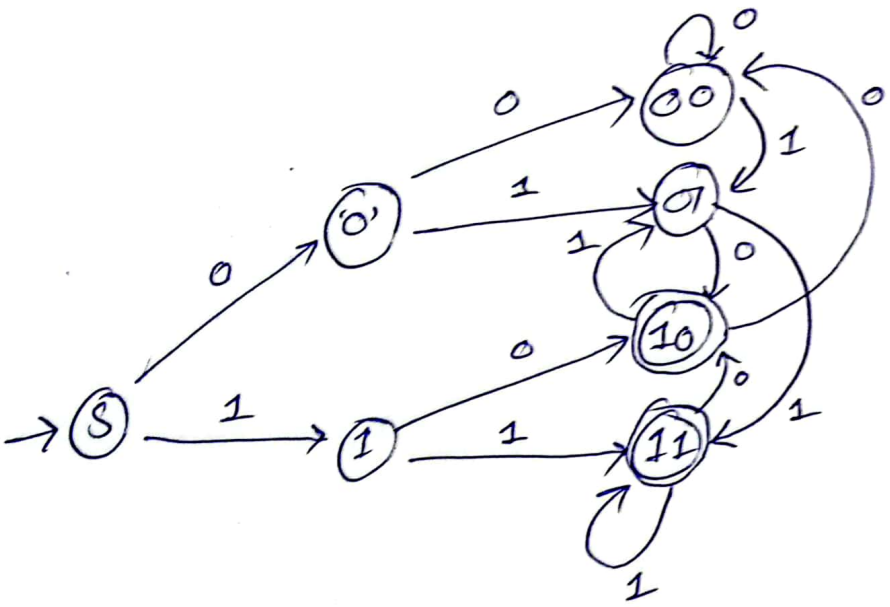
Q1a: Write 10 valid words for the Language given below in canonical order (increasing order of length)? [CLO 1]

$L = \{x \mid x \in \{0,1\}^*;$ 2nd last digit in x must be '1'$\}$

Solution:

L = { 10, 11, 010, 011, 110, 111, 0010, 0011, 0110, 0111 }

Q1b: Construct a DFA for the given Language given in Q1a. You have to draw a state diagram? [CLO 2]



Q6 Quiz Solution

National University of Computer and Emerging Sciences, Lahore Campus

Course:	Theory Of Automata	Course Code:	CS-3005
Program:	BS (Computer Science)	Semester:	Spring 23
Duration:	15 Minutes	Total Marks:	10+10
Paper Date:		Weight	
Section:		Page(s):	
Exam:	Quiz 1	Roll No.	

Instruction/Notes: Use back side of this ass for rough work. Write down final answers only in the given space provided.

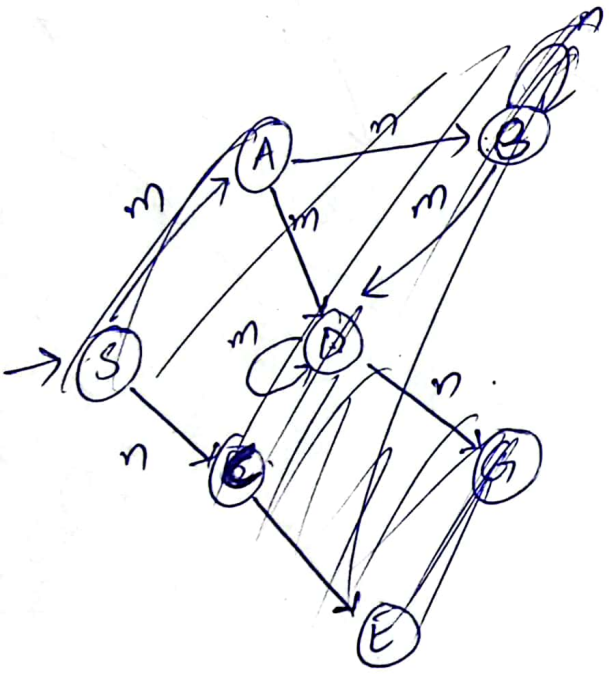
Q1a: Write 10 valid words for the Language given below in canonical order (increasing order of length)? [CLO 1]

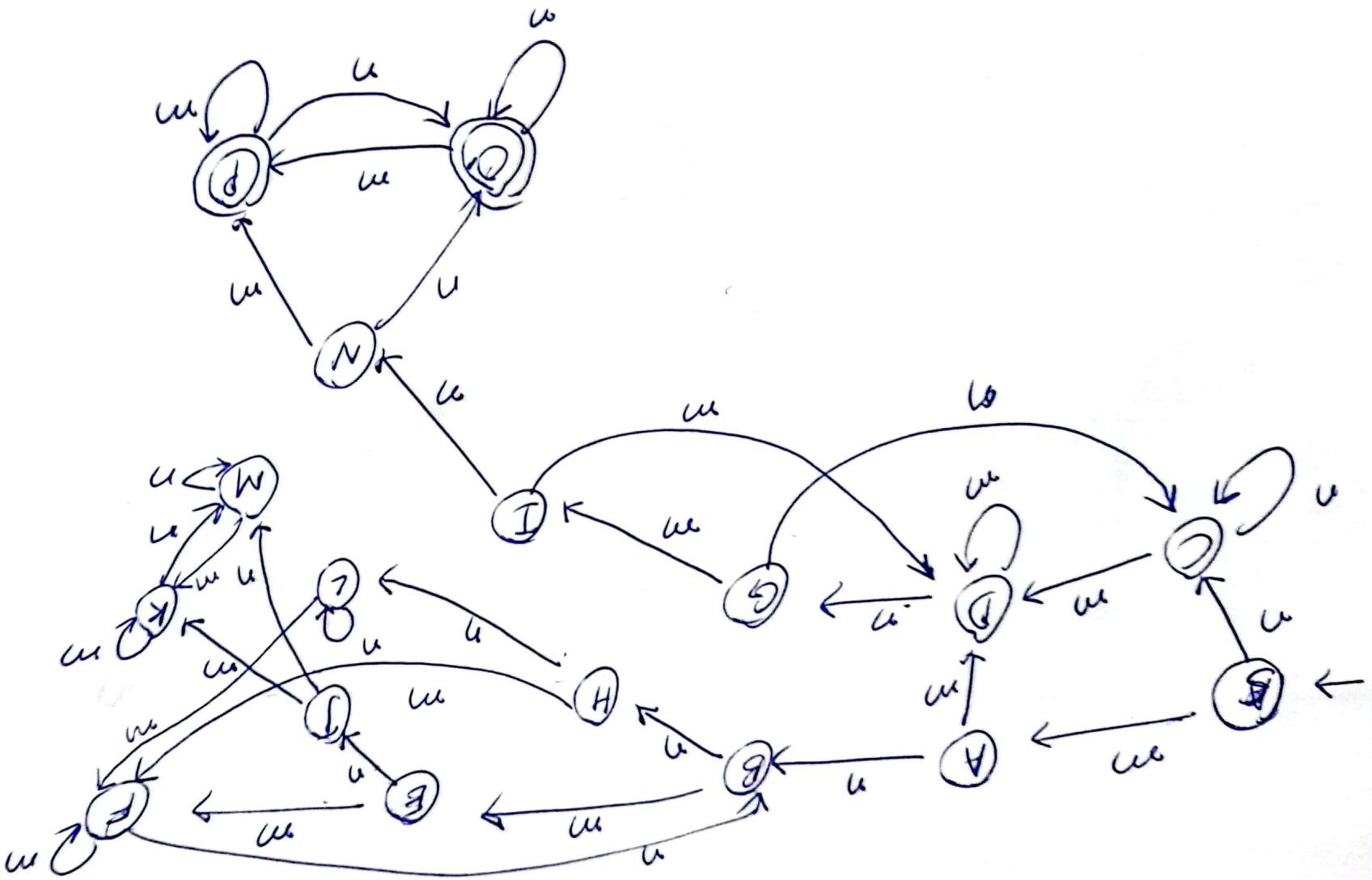
L = {x | x ∈ {m, n}*; x contains 'mnmn' as a substring but does not ends on 'mn' and does not start with 'mn'}

Solution:

L = { mmnmnm, mmnmnn, nmnmnn, mmmnmnm }
mmmnmnm, nnmnmn, mmmnmnnn, mmmnmnmmm,
mmmnmnnn, & mmnmnnn }

Q1b: Construct a DFA for the given Language given in Q1a. You have to draw a state diagram? [CLO 2]





Q7 Quiz Solution

National University of Computer and Emerging Sciences, Lahore Campus

Course:	Theory Of Automata	Course Code:	CS-3005
Program:	BS (Computer Science)	Semester:	Spring 23
Duration:	15 Minutes	Total Marks:	10+10
Paper Date:		Weight	
Section:		Page(s):	
Exam:	Quiz 1	Roll No.	

Instruction/Notes: Use back side of this ass for rough work. Write down final answers only in the given space provided.

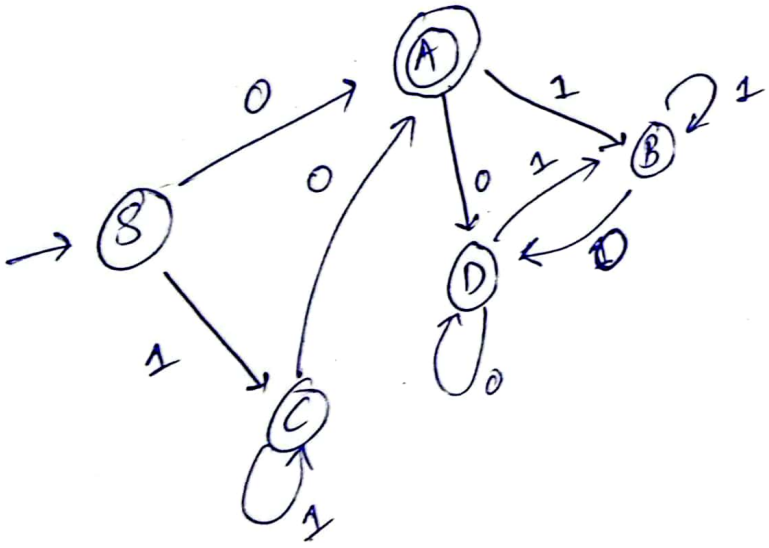
Q1a: Write 10 valid words for the Language given below in canonical order (increasing order of length)? [CLO1]

L = {x | x ∈ {0,1}*; |x| should be divisible by 2 and contains odd number of '0'}

Solution:

L = { 0, 10, 000, 010, 110, 1110, 0100, 1000, 0010, 00000 }

Q1b: Construct a DFA for the given Language given in Q1a. You have to draw a state diagram? [CLO 2]



Q8 Quiz Solution

National University of Computer and Emerging Sciences, Lahore Campus

	Course:	Theory Of Automata	Course Code:	CS-3005
	Program:	BS (Computer Science)	Semester:	Spring 23
	Duration:	15 Minutes	Total Marks:	10+10
	Paper Date:		Weight	
	Section:		Page(s):	
	Exam:	Quiz 1	Roll No.	

Instruction/Notes: Use back side of this ass for rough work. Write down final answers only in the given space provided.

Q1a: Write 10 valid words for the Language given below in canonical order (increasing order of length)? [CLO 1]

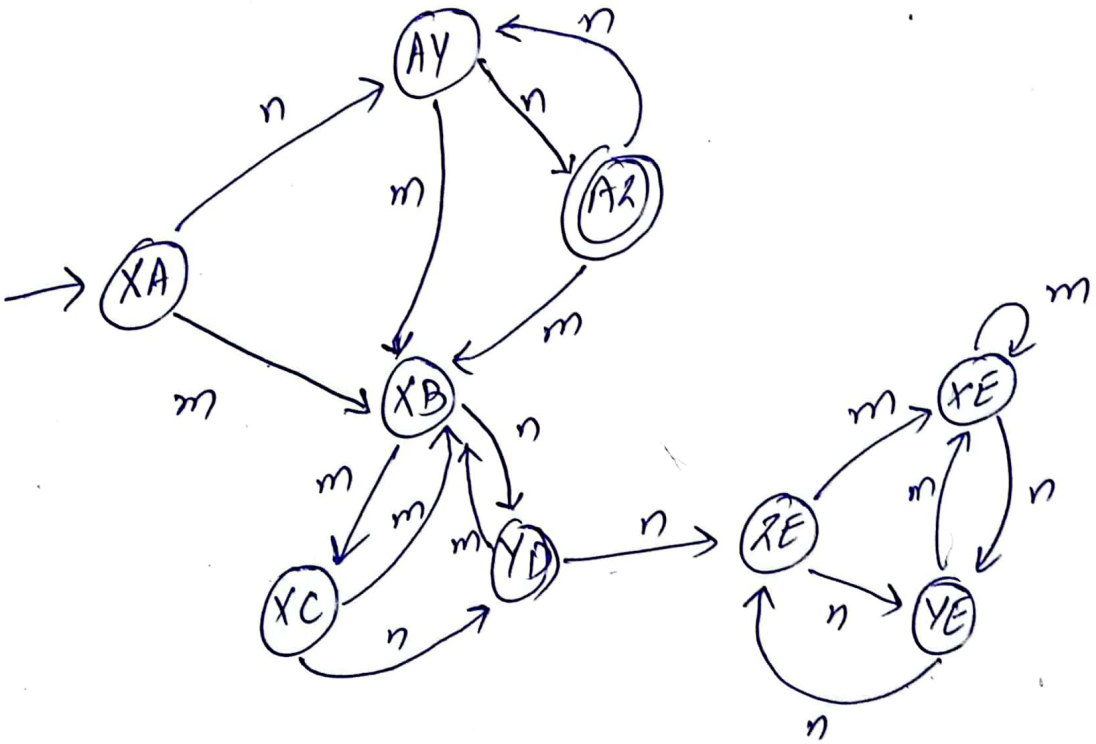
L = {x | x ∈ {m, n}*; x does not contains 'mmnn' as a substring and does ends on 'nn'}

Solution:

L = { ~~nn,~~ mnn, nnn, mnn, nnnn, }

n mnn, mnmnn, nnnnn, mnnnn, nmnnn

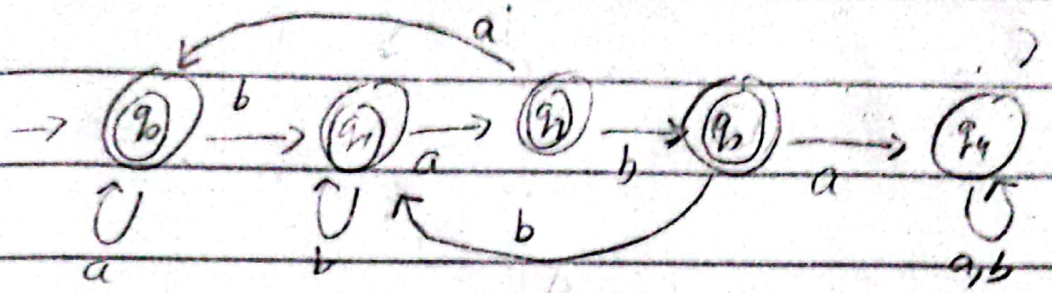
Q1b: Construct a DFA for the given Language given in Q1a. You have to draw a state diagram? [CLO 2]



Q2

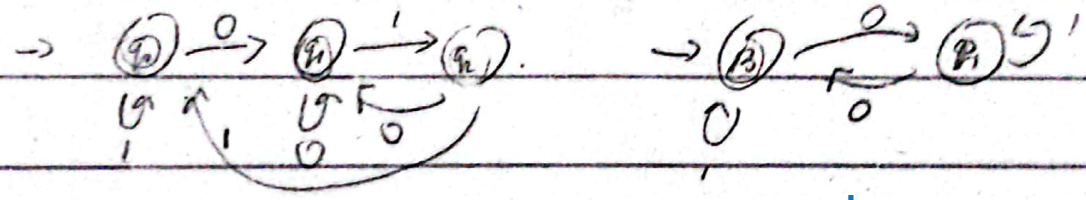
Language: null,a,b,aa,bb,ba,ab,aaa,aab,aba

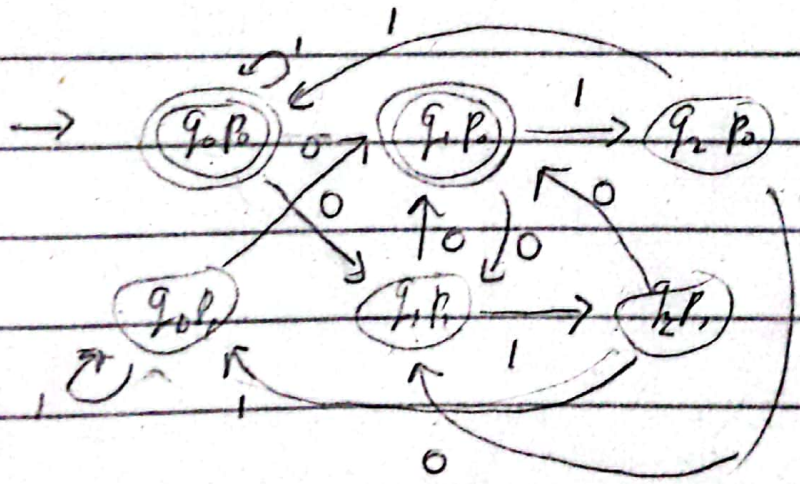
- does not contain 'baba'



Q10

- contain even number of 0 ; does not end on 01.

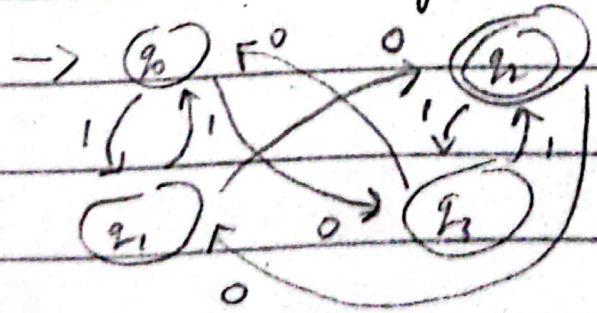




Language: null,00,11,100,010,111,0000,1100,1010,1111

Q7

- |x| divisible by 2 and odd number of 0.

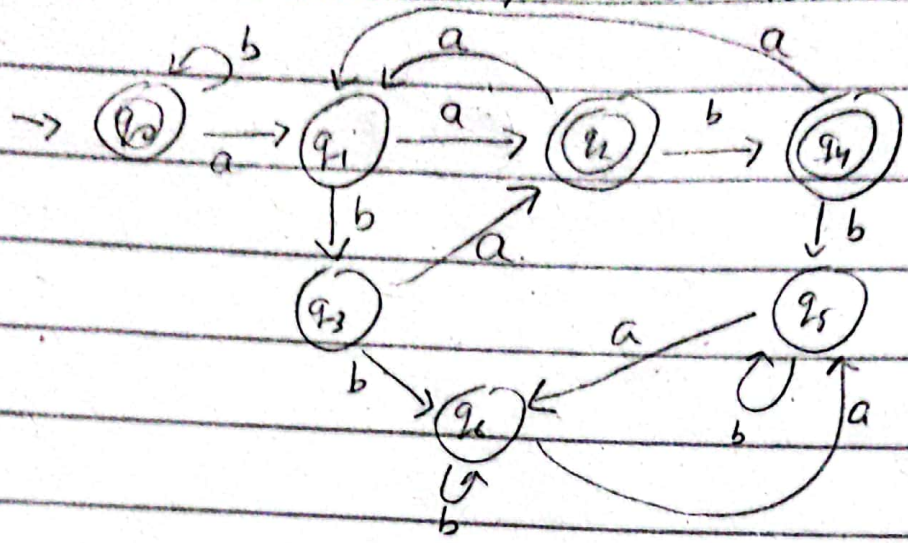


Language: 01,10,0111,1011,1101,1110,0001,0010,0100,1000

Q3

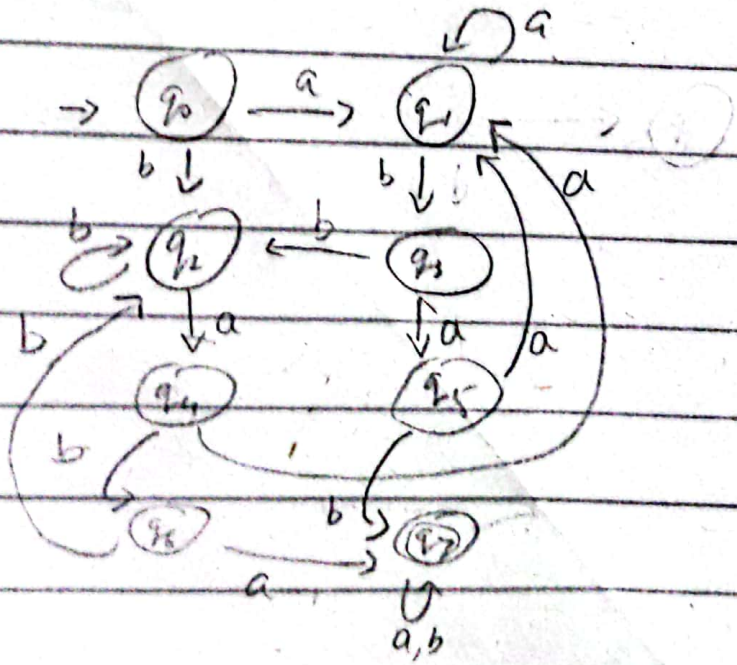
Language: null,aa,aba,aab,baa,abab,baba,baab,bbaa,bbbb

- Even number of a; each a is followed by at most one b.



Q9

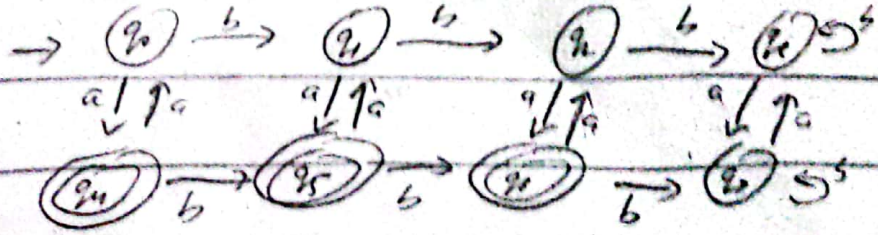
- Contain both 'aba' and 'bab'



Language:
abab,baba,aabab,
babab,babaa,
ababa,ababb,
bbaba,ababab,
bababa

Q4

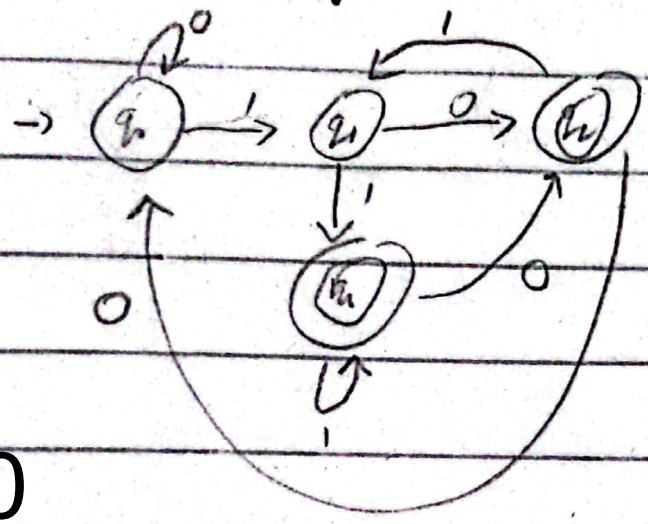
- Contain at most 2b and odd a's



Language:a,ab,ba,aaa,abb,bba,bab,aaab,aaba,abaa

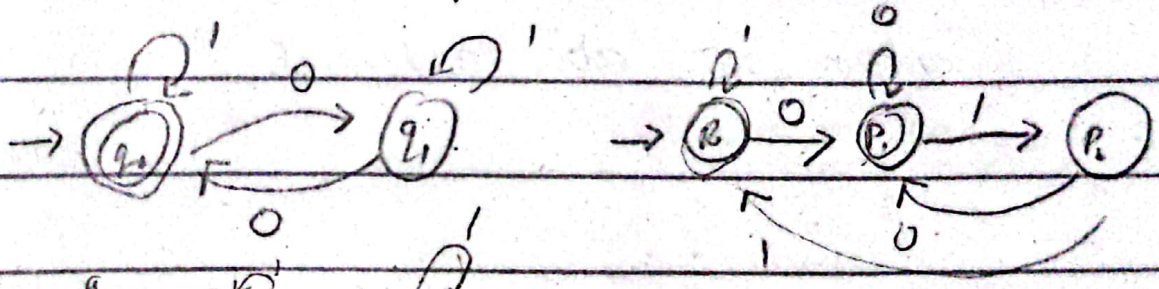
Q5

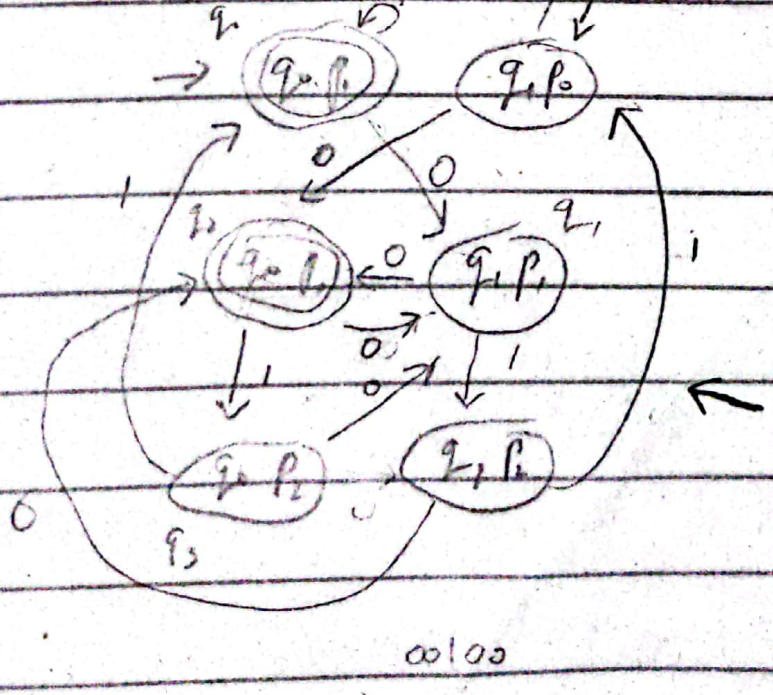
- 2nd Last digit = ex. 1.



Q10

- Contain even 0, does not end '01'





10010

Language:
null,00,11,100,
010,
111,0000,
1100,1010,
1111

00100