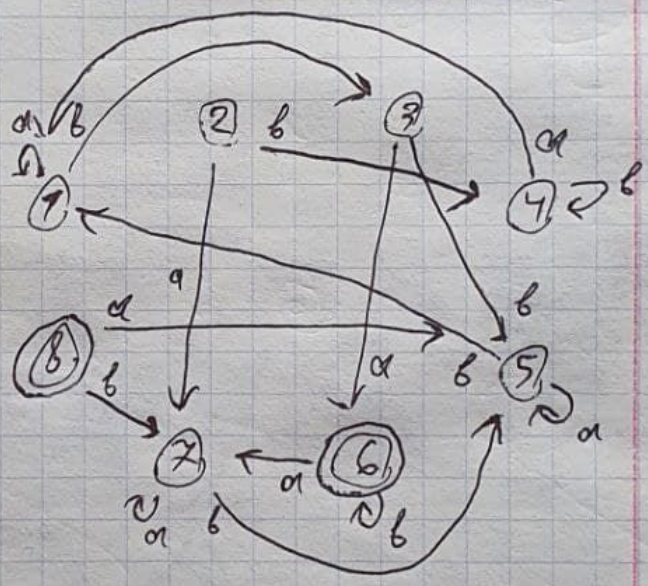
Модульна контрольна робота 1
Варіант 5

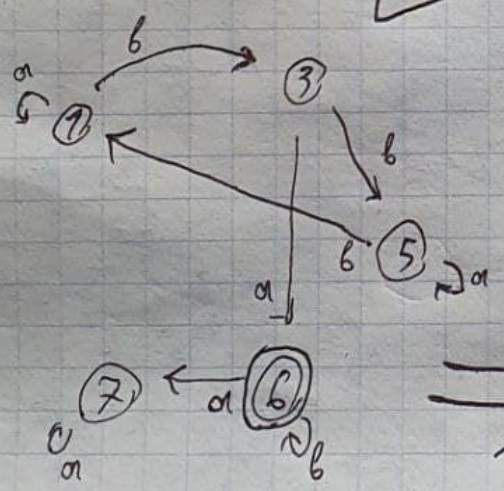
1)

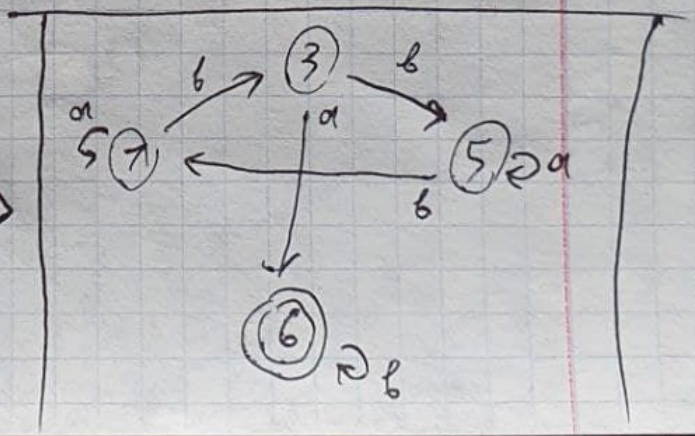
	a	b
1	1	3
2	7	4
3	6	5
4	1	4
5	5	1
6	7	6
7	7	5
8	5	7

$q_0 = 1$

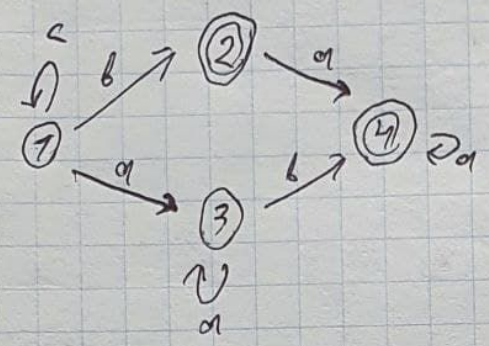
$F = \{6, 6\}$







2) $(a \cdot a^* b + b + c^* b)\, a^*$



$q_0 = 1$

$F = \{2, 4\}$

$Q = \{1, 2, 3, 4\}$

3) $X = (a + b)\, X + c\, Y + b \qquad (1)$

$Y = (a^* + b)\, X + a a\, Y + b \qquad (2)$

$(1) \Rightarrow X = (a+b)^* (c\, Y + b) \Rightarrow$

$\Rightarrow Y = (a^* + b)(a+b)^* (c\, Y + b) + a a\, Y + b \Rightarrow$

$\Rightarrow Y = ((a^* + b)(a+b)^* c + a a)^* ((a^* + b)(a+b)^* b + b) \Rightarrow$

$$\Rightarrow \begin{cases} X = (a+b)^* (c((a^* + b)(a+b)^* c + a a)^* ((a^* + b)(a+b)^* b + b) + b \\ Y = ((a^* + b)(a+b)^* c + a a)^* ((a^* + b)(a+b)^* b + b) \end{cases}$$

4) public static boolean fAutomat(String s){

```
int currPos = 1;
for(int i=0; i< s.length(); i++){
  if(currPos ==1){
      if(s[i]=='a'){ currPos = 3;} else
      if(s[i]== 'b'){ currPos = 2;} else
      if(s[i]== 'c'){ currPos = 1;} else
                                { currPos =0};
  }
  if(currPos == 2){
     if(s[i]=='a'){ currPos = 4;} else
    { currPos ==0;}
  if(currPos == 3){
     if(s[i]=='a'){ currPos = 3;} else
     if(s[i]=='b'){ currPos = 4;} else
     { currPos = 0;}.
  if(currPos ==4)(s[i]==a)){ currPos = 4;}
  else { currPos=0;}}}.
if(currPos==2||currPos==4){return true;}
                          else return false;
```