Midterm

1.**Definitions (10 p)**

a. An alphabet **(1 p)**

b. String **(1 p)**

c. Length of string **(1p)**

d. Kleen star **(1p)**

e. Language **(1p)**

f. Definition of Regular expression **(2p)**

g. Deterministic Finite Automaton **(3p)**

2. Define corresponding sets for given regular expressions

Regular Expression	Regular Set	
(0+10*)	L=	1p
(0*10*)	L=	1p
(0+ε)(1+ ε)	L=	1p
(a+b)*	L= { }	1p
(a+b)*abb	L = { }	1p
(11)*		1p
(aa)*(bb)*b		2p
(aa + ab + ba + bb)*		2p

3. (5p.)

Let a deterministic finite automaton be

- Q = {a, b, c},
- Σ = {0, 1},
- q_0={a},
- F={c}, and

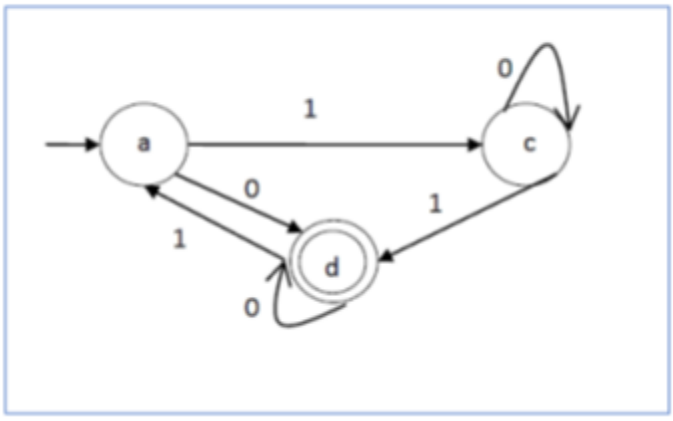
Transition function δ as shown by the following table:

Present State	Next State for Input 0	Next State for Input 1
a	a	b
b	c	a
c	b	c

Give its graphical representation

4. (5p.)

Let us consider the DFA shown in Figure



From the DFA, define the acceptable strings that can be derived