Muhammad Azhar Rasyad — Teknik Informatika — TBO — Tugas 1

1. a. RE = a^* (ab) $(a+b)^*$

   b. RE = $b^* a b^*$
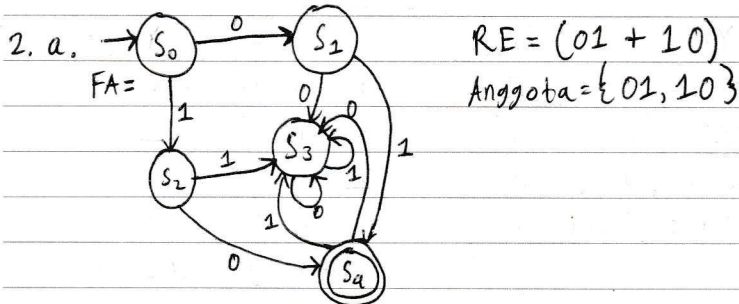
2. a.

FA=

RE = (01 + 10)

Anggota = {01, 10}

   b. Anggota = { 0110 }

FA=

RE = 0(11)0

3. a.

F^*	F^*	F^+	F^*
λ	λ	F	λ
F	F	FF	F
FF	FF	FFF	FF

F^*	F	F^*
λ	F	λ
F		F
FF		FF
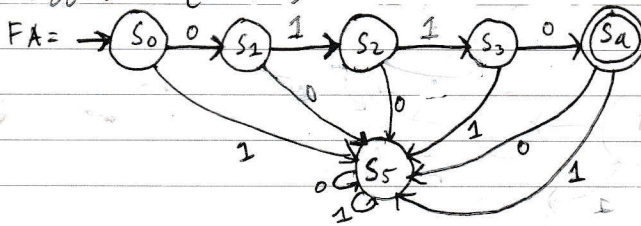
{F, FF, FFF, FFFF, FFFFF, ...} = {F, FF, FFF, FFFF, FFFFF, ...}

Ekuivalen

   b.

0	$(10)^+$
0	10
	1010
	101010

(01)	$(01)^*$	0
01	λ	0
	01	
	0101	

{ 010, 01010, 0101010, ... } = { 010, 01010, 0101010, ... }

Ekuivalen

4.a

b. ab_abbaaba :

T in a to V
V in b to W
W in a to X
X in b to W
W in b to Y
Y in a to X
X in a to Z
Z in b to W
W in a to X
Input diterima

bbaabbaabb :

T in b to U
U in b to Y
Y in a to X
X in a to Z
Z in b to W
W in b to Y
Y in a to X
X in a to Z
Z in b to W
W in b to Y
Input ditolak

5.a. RE =

0	$(0+1)$	$(0+1)^*$
0	0	λ
	1	0
		1
		01
		10
		$...$

$\{00, 01, 000, 010, 001, 011, 0001, 0101, 0010,$
$0110, ... \}$

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b. RE =

$(P+q)^*$	q	$(P+q)^*$
λ	q	λ
P		P
q		q
Pq		Pq
qP		qP
$...$		$...$

$\{q, Pq, qP, PqP, qqP, qqq, PqqP, Pqqq, PqPq, PqqP, qqPq,$
$qqqP, PqqPq, PqqqP, qPqP, qPqq, qPqPq, qPqqP, ... \}$

6. a. $FA_4 = FA_2 . FA_1$

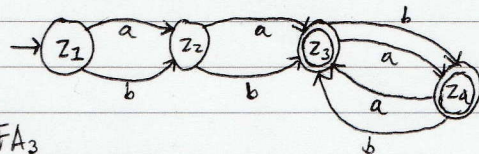FA₂ ... FA₁
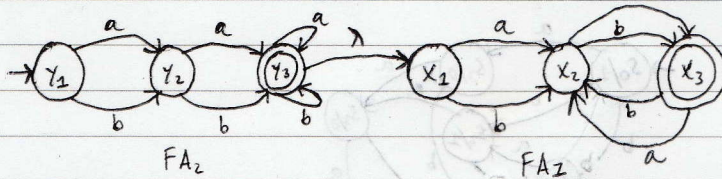
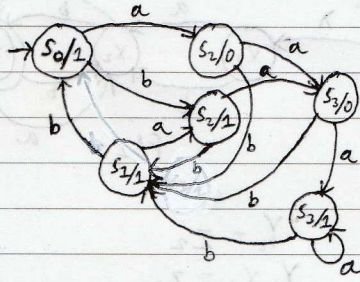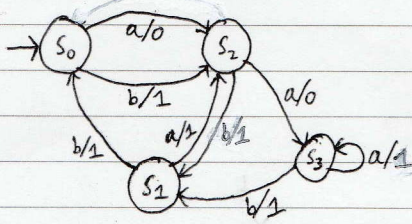| State	a	b
$Y_1 = Z_1 (-)$	$Y_2 = Z_2$	$Y_2 = Z_2$
$Y_2 = Z_2$	$Y_3 X_1 = Z_3$	$Y_3 X_1 = Z_3$
$Y_3 X_1 = Z_3$	$Y_3 X_1 X_2 = Z_4$	$Y_3 X_1 X_2 = Z_4$
$Y_3 X_1 X_2 = Z_4$	$Y_3 X_1 X_2 X_3 = Z_5$	$Y_3 X_1 X_2 X_3 = Z_5$
$Y_3 X_1 X_2 X_3 = Z_5 (t)$	$Y_3 X_1 X_2 = Z_4$	$Y_3 X_1 X_2 = Z_4$

FA₄
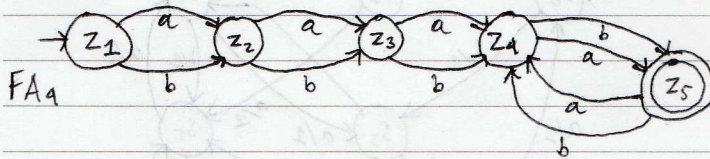
b. $FA_3 = FA_1 + FA_2$

State	a	b
$(X_1 + Y_1) Z_1$	$(X_2 + Y_2) Z_2$	$(X_2 + Y_2) Z_2$
$(X_2 + Y_2) Z_2$	$(X_3 + Y_3) Z_3$	$(X_3 + Y_3) Z_3$
$(X_3 + Y_3) Z_3$	$(X_2 + Y_3) Z_4$	$(X_2 + Y_3) Z_4$
$(X_2 + Y_3) Z_4$	$(X_3 + Y_3) Z_3$	$(X_3 + Y_3) Z_3$

FA₃

7. a. Gambar Mesin Mealy

b. Ubah ke Mesin Moore

8. a. Gambar Mesin Moore

b. Ubah ke Mesin Mealy