Mata Kuliah : Teori Bahasa Dan Automata
Prodi : Teknik Informatika
Kelas : A2 2019
Kelompok : Isep Lutpi Nur (2113191079)
Adistia Ramadhani (2113191084)
Farhan Aziz (2113191097)
Dara Atria Ferliandini (2113191098)

Minggu 09 Review UTS

No	A1	A2
1	isep	isep
2	farhan	farhan
3	adis	dara
4	dara	adis
5	farhan	isep

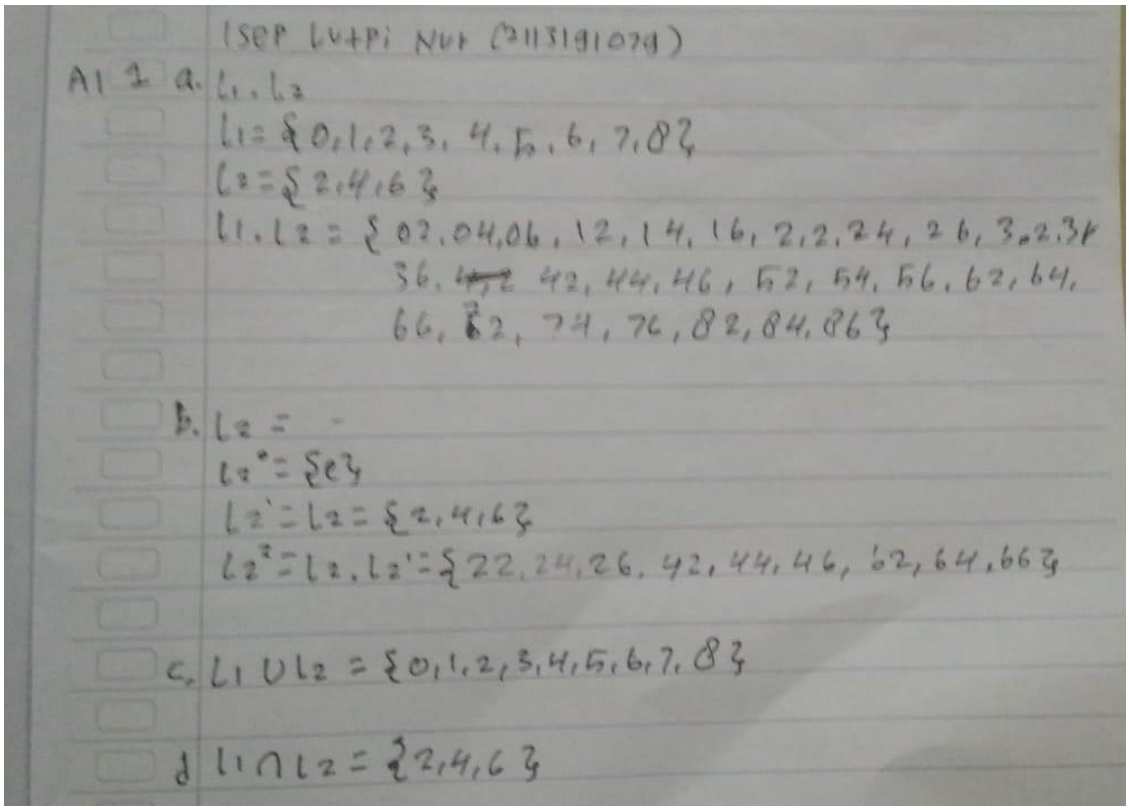
Soal UTS A1

1. **Misalkan L_1 dan L_2 merupakan bahasa-bahasa berdasarkan alfabet ∑**

   L_1 = {0,1,2,3,4,5,6,7,8}

   L_2 = {2, 4 ,6}

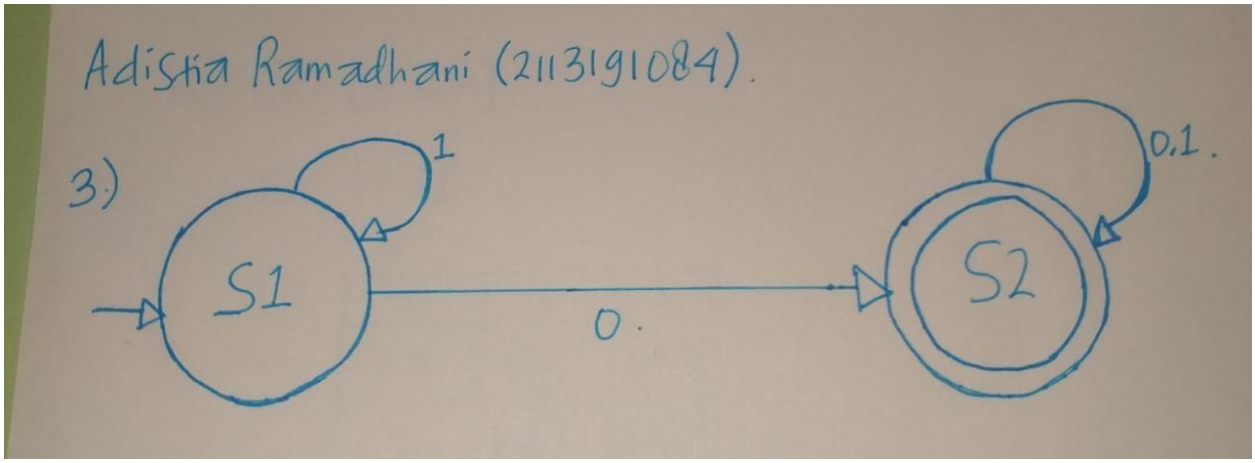
   Tentukanlah :



2. **Jika di ketahui string x = "bandung" dan y = "kota", tentukanlah**

Soal A1 : 2. a). x|y = bandung atau kota
b). xy : bandungkota
c) tail(x) = andung
d) |x|n = 2
e) substring (y) = kota, kot, ota, ko, ta, t, k, t, a dan ε
f) prefix (y) = kota, kot, ko, k dan ε

3. **Buatlah sebuah DFA yang bisa menerima semua bahasa berikut dalam sebuah gambar dengan menggunakan 2 buah state**
   - L(A) = {x | x = 01^n0, x ∈ {0,1} }
   - L(A) = {x | x = 1^m01^n0, x ∈ {0,1} }
   - L(A) = {x | x = 001^n, x ∈ {0,1} }



4. Perhatikan tabel transisi berikut ini :

F	a	b
->S0	{S2}	{S0}
S1	{S0}	{S0, S1}
*S2	{S1}	{S2}

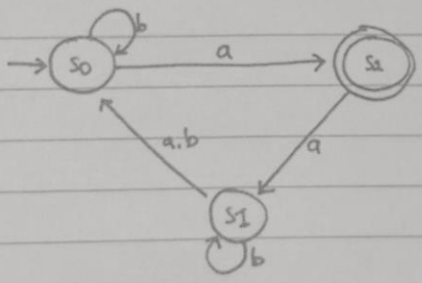
4. a) Tupple

* Q : {S0, S1, S2}
* Σ : {a, b}
* T :

F	a	b
→ S0	{S2}	{S0}
S1	{S0}	{S0, S1}
* S2	{S1}	{S2}

* S : S0
* f : S2

b) Tabel Transisi



c) Tupple

* Q : {S1, S2, S3, S4, S5, S6}
* Σ : {0, 1}

* T :

f	a	b
→ S0	{S2}	{S0}
S1	{S0}	{S0, S1}
* S2	{S1}	{S2}
{S0, S1}	{S0, S2}	{S0, S1}
*{S0, S2}	{S1, S2}	{S0, S2}
*{S1, S2}	{S0, S1}	{S0, S1, S2}
*{S0, S1, S2}	{S0, S1, S2}	{S0, S1, S2}

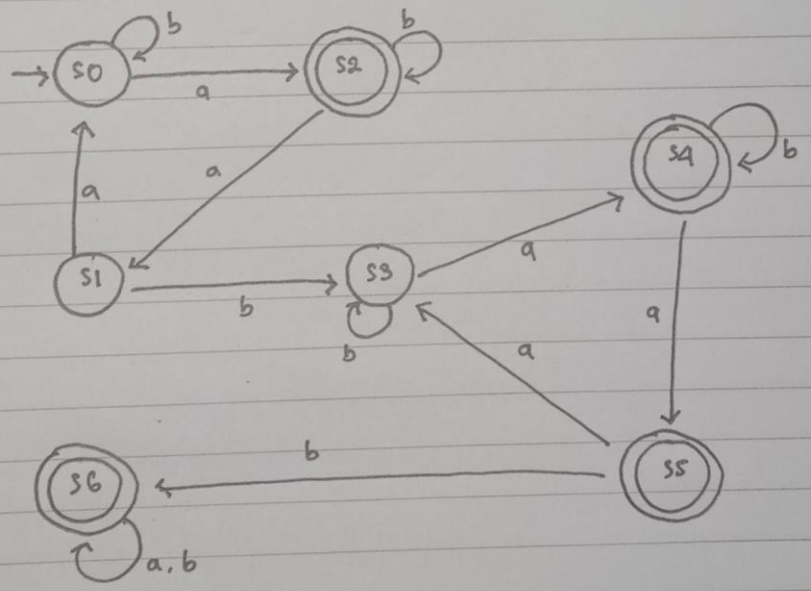
⇒

f	a	b
→ S0	{S2}	{S0}
S1	{S0}	{S3}
* S2	{S1}	{S2}
S3	{S4}	{S3}
*S4	{S5}	{S4}
* S5	{S3}	{S6}
* S6	{S6}	{S6}

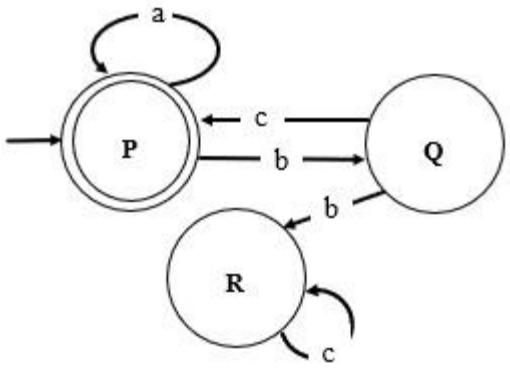
* S : S0

* f : {S2, S4, S5, S6}

Gambar :



5. Perhatikan gambar berikut ini :



Tentukanlah :

No.

Date . .

Soal A1: no. 5 :

Tentukanlah :

a) Semua Tupple dari gambar diatas (Q, Σ, T, S, F)

Q = {P, Q, R}

Σ = {a, b, c}

T =

T	a	b	c
→P	P	Q	ε
Q	ε	ε	C
R	ε	ε	R

S : P

F : P

b) T(P, aabcbcc) = (P, bcbcc) = (Q, cbcc) = (P, bcc) =
(Q, cc) =
= (P, c) = ε Ditolak

c) T(P, bcaabc) = (P, bcaabc) = (Q, caabc), = (P, aabc)
= (P, bc)
= (Q, c) = P Diterima

Soal UTS A2

1. **Misalkan L_1 dan L_2 merupakan bahasa-bahasa berdasarkan alfabet $\sum$**

   L_1 = {1,3,5,7,9}

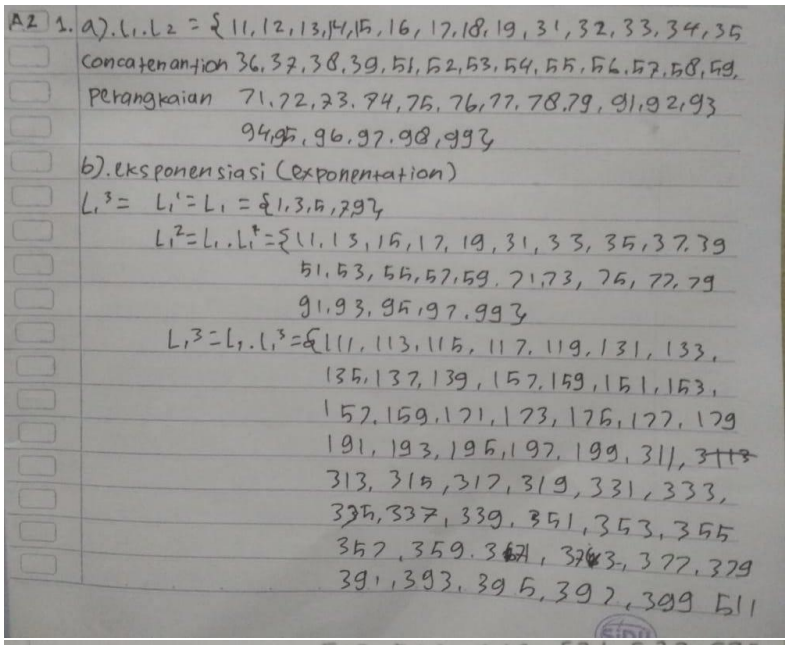
   L_2 = {1,2,3,4,5,6,7,8,9}

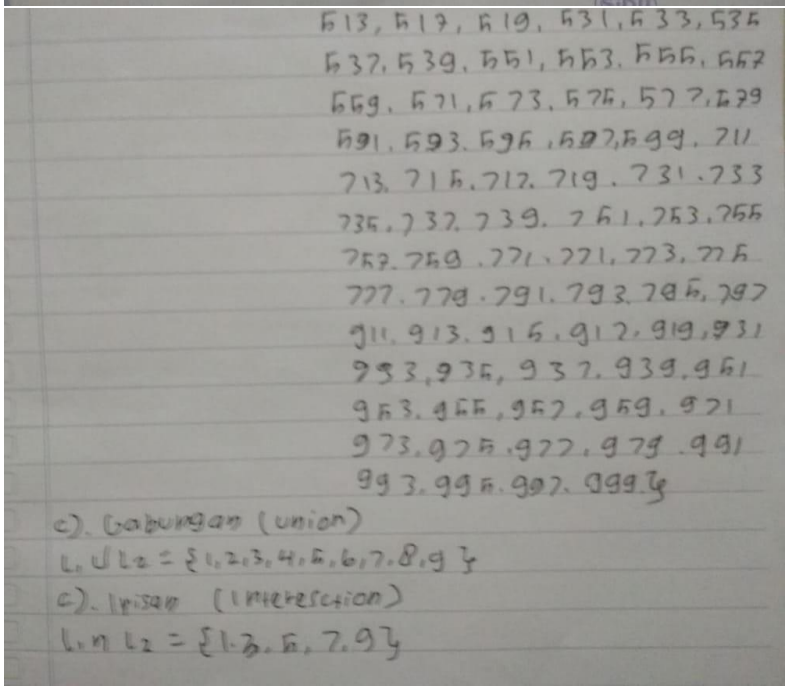
   Tentukanlah:

   a) $L_1.L_2$ c) $L_1 \cup L_2$

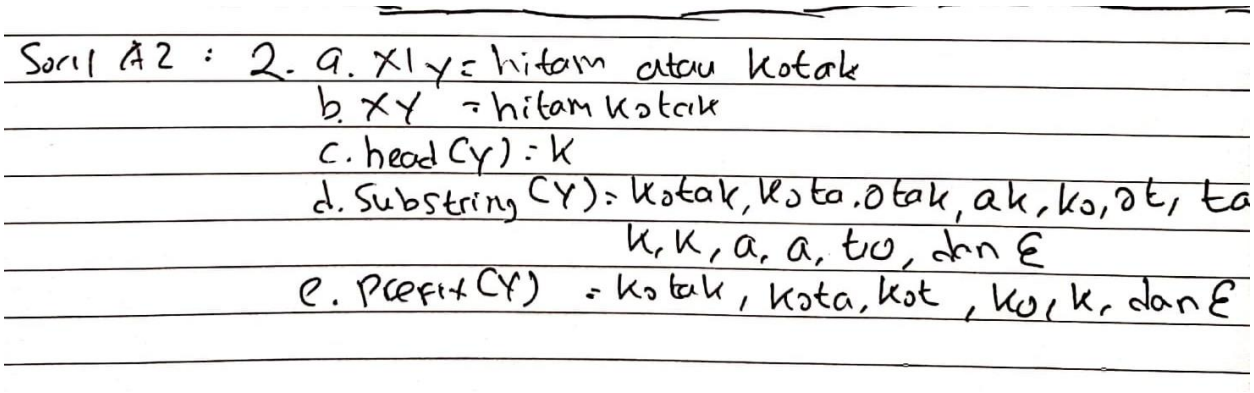
   b) L_1^3 d) $L_1 \cap L_2$

   Jawaban:

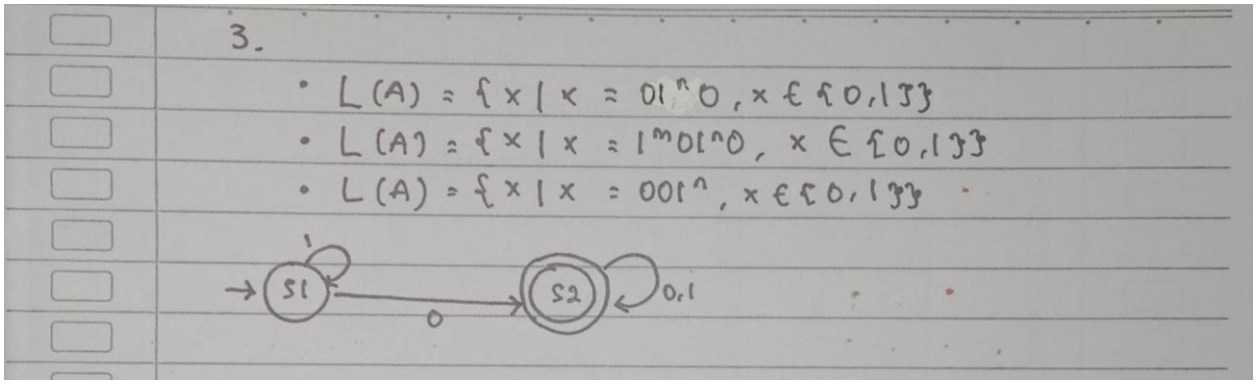

A2 1. a). $L_1.L_2$ = {11, 12, 13, 14, 15, 16, 17, 18, 19, 31, 32, 33, 34, 35
concatenantion 36, 37, 38, 39, 51, 52, 53, 54, 55, 56, 57, 58, 59,
perangkaian 71, 72, 73, 74, 75, 76, 77, 78, 79, 91, 92, 93
94, 95, 96, 97, 98, 99}
b). eksponensiasi (exponentation)
$L_1^3 = L_1^1 = L_1$ = {1, 3, 5, 7, 9}
$L_1^2 = L_1.L_1^1$ = {11, 13, 15, 17, 19, 31, 33, 35, 37, 39
51, 53, 55, 57, 59, 71, 73, 75, 77, 79
91, 93, 95, 97, 99}
$L_1^3 = L_1.L_1^3$ = {111, 113, 115, 117, 119, 131, 133,
135, 137, 139, 157, 159, 151, 153,
157, 159, 171, 173, 175, 177, 179
191, 193, 195, 197, 199, 311, 313
313, 315, 317, 319, 331, 333,
335, 337, 339, 351, 353, 355
357, 359, 371, 373, 377, 379
391, 393, 395, 397, 399 511


513, 517, 519, 531, 533, 535
537, 539, 551, 553, 555, 557
559, 571, 573, 575, 577, 579
591, 593, 595, 597, 599, 711
713, 715, 717, 719, 731, 733
735, 737, 739, 751, 753, 755
757, 759, 771, 771, 773, 775
777, 779, 791, 793, 795, 797
911, 913, 915, 917, 919, 931
933, 935, 937, 939, 951
953, 955, 957, 959, 971
973, 975, 977, 979, 991
993, 995, 997, 999}
c). Gabungan (union)
$L_1 \cup L_2$ = {1, 2, 3, 4, 5, 6, 7, 8, 9}
c). Irisan (intersection)
$L_1 \cap L_2$ = {1, 3, 5, 7, 9}

2. **Jika di ketahui string x = "hitam" dan y = "kotak", tentukanlah**



3. **Buatlah sebuah DFA yang bisa menerima semua bahasa berikut dalam sebuah gambar dengan menggunakan 2 buah state**



4. **Perhatikan tabel transisi berikut ini :**

F	0	1
->a	{b}	{a, b}
b	{c}	{b}
*c	{a}	{c}

Berdasarkan tabel diatas buat/tentukanlah :

Adistia Ramadhani (2113191084)

4.) a.) $Q : \{a, b, c\}$

$\Sigma : \{0, 1\}$

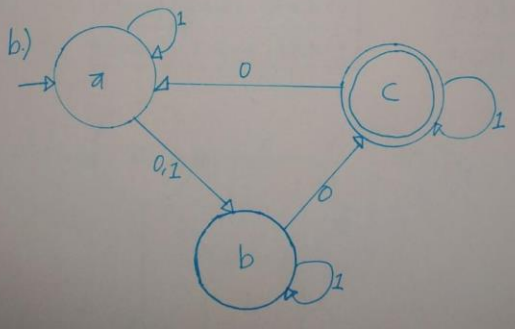
T :

F	0	1
→ a	{b}	{a,b}
b	{c}	{b}
* c	{a}	{c}

$S : a$

$F : \{c\}$

b.)



4.) c.) $Q : \{a, b, c, d, e, f, g\}$

$\Sigma : \{0, 1\}$

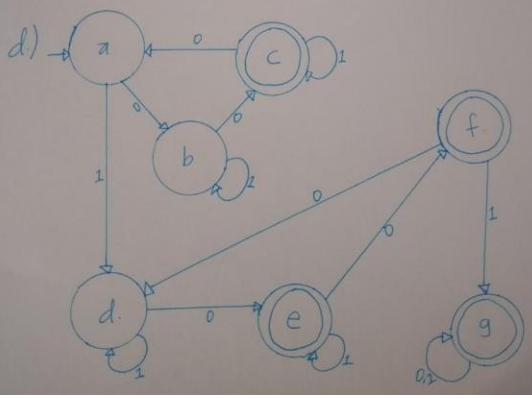
T :

F	0	1
→ a	{b}	{a,b}
b	{c}	{b}
* c	{a}	{c}
{a,b}	{b,c}	{a,b}
* {b,c}	{a,c}	{b,c}
* {a,c}	{a,b}	{a,b,c}
* {a,b,c}	{a,b,c}	{a,b,c}

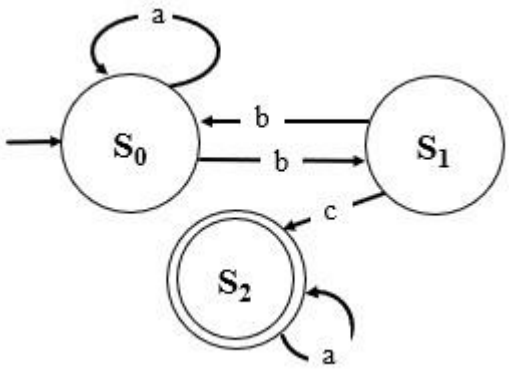
⟹

F	0	1
→ a	{b}	{d}
b	{c}	{b}
* c	{a}	{c}
{d}	{e}	{d}
* {e}	{f}	{e}
* {f}	{d}	{g}
* {g}	{g}	{g}

d.)



5. **Perhatikan gambar berikut ini :**



Tentukanlah :

A2 5 a. TUPPLE

Q : { S0, S1, S2 }

Σ : { a, b, c }

δ :

δ	a	b	c
→S0	S0	S1	ε
S1	ε	ε	S2
*S2	S2	ε	ε

S : S0

F : S2

b. δ (S0, aabbbca) = (S0, bbbca) = (S1, bbca)
= (S0, bca) = (S1, ca) = (S2, a)
= S2 (Diterima)

c. δ (S0, bbac) = (S1, bac) = (S0, ac) = (S0, c)
= ε (Ditolak)