

Lampiran 1

- Tabel 1 Larutan surfaktan ABS pada pH 7, 8

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)			
			1	2	3	Rata - rata
1	0	0	0	0	0	0
2	50	5	0.5	0.5	0.4	0.5
3	100	4	1.6	1.5	1.8	1.6
4	150	3	2.2	2	2.4	2.2
5	200	3	5.3	5.4	5.3	5.3
6	250	3	7.7	7.8	7.8	7.8
7	300	3	7.8	7.9	8.1	8
8	350	3	8.3	8.4	8.2	8.3
9	400	3	8.5	8.5	8.5	8.5
10	450	3	8.6	8.4	8.5	8.5
11	500	3	8.6	8.5	8.6	8.6

- Tabel 2 Larutan surfaktan SDS

No	Konsentrasi SDS (ppm)	Diameter (mm)	Tinggi Buih (cm)			
			1	2	3	Rata- rata
1	0	-	0	0	0	0
2	100	-	0	0	0	0
3	125	4	0.6	0.6	0.6	0.6
4	150	4	0.8	0.8	0.8	0.8
5	175	4	1	1	1	1
6	200	4	2	1.9	2.1	2
7	300	3	2	3.5	2.1	2.5
8	400	3	3.4	3	3.3	3.2
9	500	2	3.9	3.3	3.4	3.5
10	600	2	3.7	3.6	3.7	3.7
11	700	2	4.3	3.8	4	4
12	800	2	4	3.9	4	4
13	900	1	3.9	4.2	4	4
14	1000	1	4	4	4.1	4

• Tabel 3 Larutan surfaktan ABS + 50 ppm Mg^{2+}

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata – rata
1	0	0	0	0	0
2	50	5	5.5	6	5.75
3	100	4	6	6	6
4	150	3	6.3	6.2	6.25
5	200	3	6.4	6.5	6.45
6	250	2	6.5	6.5	6.5
7	300	2	6.6	6.7	6.65
8	350	2	7	7	7
9	400	2	7.3	7.2	7.25
10	450	2	7.5	7.5	7.5
11	500	2	7.7	7.6	7.65

• Tabel 4 Larutan surfaktan ABS + 100 ppm Mg^{2+}

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata – rata
1	0	0	0	0	0
2	50	5	6	6.2	6.1
3	100	4	6.5	6.4	6.45
4	150	3	6.5	6.5	6.5
5	200	3	6.6	6.6	6.6
6	250	2	7	7.1	7.05
7	300	2	7.3	7.2	7.25
8	350	2	7.7	7.5	7.6
9	400	2	7.8	7.6	7.7
10	450	2	8	8.1	8.05
11	500	2	8	8.6	8.1

Tabel 5 Larutan surfaktan ABS + 150 ppm Mg^{2+}

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	6.3	6.4	6.35
3	100	4	6.5	6.5	6.5
4	150	3	6.6	6.5	6.55
5	200	3	6.8	6.8	6.8
6	250	2	7	7	7
7	300	2	7.5	7.3	7.4
8	350	2	7.6	7.8	7.7
9	400	2	8	8	8
10	450	2	8.1	8.1	8.1
11	500	2	8.2	8.3	8.25

Tabel 6 Larutan Surfaktan ABS + 200 ppm Mg^{2+}

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	4	7	7.1	7.05
3	100	3	7.2	7.2	7.2
4	150	3	7.2	7.2	7.2
5	200	3	7.3	7.1	7.2
6	250	2	7.7	7.5	7.6
7	300	2	8	8	8
8	350	2	8.2	8.2	8.2
9	400	2	8.3	8.2	8.25
10	450	2	8.3	8.2	8.25
11	500	2	8.4	8.2	8.3

- Tabel 7 Larutan surfaktan ABS + 250 Mg²⁺

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	6.7	6.5	6.6
3	100	4	8	8	8
4	150	3	8.3	8.1	8.2
5	200	3	8.5	8.3	8.4
6	250	2	8.5	8.4	8.45
7	300	2	8.6	8.6	8.6
8	350	2	8.7	8.7	8.7
9	400	2	8.8	8.7	8.75
10	450	2	9	9	9
11	500	2	9.2	9	9.1

- Tabel 8 Larutan Surfaktan SDS + 100 ppm Mg²⁺

No	Konsentrasi SDS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	100	4	0.85	0.85	0.85
3	125	3	0.9	0.9	0.9
4	150	3	1	1	1
5	175	3	1.8	1.8	1.8
6	200	3	2.4	2.2	2.3
7	300	2	2.7	3	2.85
8	400	2	5	5.2	5.1
9	500	2	6	6	6
10	600	2	7.5	7.4	7.45
11	700	2	7.7	7.5	7.6
12	800	2	7.8	7.7	7.75
13	900	2	8	8	8
14	1000	2	8.2	8.1	8.15

- Tabel 9 Larutan SDS + 150 ppm Mg^{2+}

No	Konsentrasi SDS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	100	4	0.95	0.95	0.95
3	125	3	1	1	1
4	150	3	1.3	1.3	1.3
5	175	3	2	2	2
6	200	3	5	5	5
7	300	2	5.5	5.1	5.3
8	400	2	6.4	6.7	6.55
9	500	2	7	7.2	7.1
10	600	2	8	8	8
11	700	2	8.1	8	8.05
12	800	2	8.4	8.2	8.3
13	900	2	8.3	8.4	8.35
14	1000	2	8.6	8.5	8.55

- Tabel 10 Larutan surfaktan SDS + 200 ppm Mg^{2+}

No	Konsentrasi SDS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	100	4	1.2	1.2	1.2
3	125	3	1.3	1.3	1.3
4	150	3	1.5	1.5	1.5
5	175	3	2.5	2.5	2.5
6	200	3	6	5.7	5.85
7	300	2	6	6	6
8	400	2	7.1	7	7.05
9	500	2	7.5	7.3	7.4
10	600	2	8.2	8	8.1
11	700	2	8.1	8.2	8.15
12	800	2	8.3	8.4	8.35
13	900	2	8.5	8.4	8.45
14	1000	2	8.7	8.5	8.6

- Tabel 11 Larutan surfaktan ABS + 100 ppm Ca²⁺

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata – rata
1	0	0	0	0	0
2	50	5	5	4.9	4.95
3	100	4	7.1	7.1	7.1
4	150	3	7.4	7.2	7.3
5	200	3	7.5	7.4	7.45
6	250	2	7.7	7.6	7.65
7	300	2	8	8	8
8	350	2	8.1	8.2	8.15
9	400	2	8.3	8.2	8.25
10	450	2	8.4	8.3	8.35
11	500	2	8.5	8.4	8.45

- Tabel 12 Larutan surfaktan ABS + 150 ppm Ca²⁺

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata – rata
1	0	0	0	0	0
2	50	5	6	5.8	5.9
3	100	4	7.2	7.2	7.2
4	150	3	7.5	7.3	7.4
5	200	3	7.7	7.5	7.6
6	250	2	8	8.2	8.1
7	300	2	8.2	8.1	8.15
8	350	2	8.4	8.2	8.3
9	400	2	8.5	8.4	8.45
10	450	2	8.6	8.7	8.65
11	500	2	8.7	8.8	8.75

- Tabel 13 Larutan surfaktan ABS + 200 ppm Ca²⁺

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	6.3	6.5	6.4
3	100	4	7.2	7.3	7.25
4	150	3	7.5	7.6	7.55
5	200	3	8	8.3	8.15
6	250	2	8.2	8.4	8.3
7	300	2	8.3	8.5	8.4
8	350	2	8.5	8.5	8.55
9	400	2	8.6	8.7	8.65
10	450	2	8.7	8.7	8.7
11	500	2	8.9	9	8.95

- Tabel 14 Larutan surfaktan ABS + 250 ppm Ca²⁺

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	6.5	6.5	6.55
3	100	4	7.3	7.3	7.3
4	150	3	7.6	7.7	7.65
5	200	3	8.2	8.3	8.25
6	250	2	8.3	8.4	8.35
7	300	2	8.4	8.6	8.5
8	350	2	8.8	9	8.9
9	400	2	8.9	9.1	9
10	450	2	9.2	9.3	9.25
11	500	2	9.5	9.3	9.4

- Tabel 15 Larutan surfaktan ABS + 300 ppm Ca²⁺

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	7	7.2	7.1
3	100	4	7.3	7.4	7.35
4	150	3	7.7	7.8	7.75
5	200	3	8.3	8.4	8.35
6	250	2	8.5	8.3	8.4
7	300	2	8.8	8.9	8.85
8	350	2	9	9.1	9.05
9	400	2	9.3	9.1	9.2
10	450	2	9.3	9.4	9.35
11	500	2	9.5	9.5	9.5

- Tabel 16 Larutan surfaktan ABS Pada pH 6.8

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	4.5	4	4.25
3	100	4	7.4	7.5	7.45
4	150	3	7.6	7.7	7.65
5	200	3	8	7.9	7.95
6	250	2	8.2	8.1	8.15
7	300	2	8.3	8.4	8.35
8	350	2	8.6	8.4	8.5
9	400	2	8.5	8.7	8.6
10	450	2	8.9	9	8.95
11	500	2	9	9	9

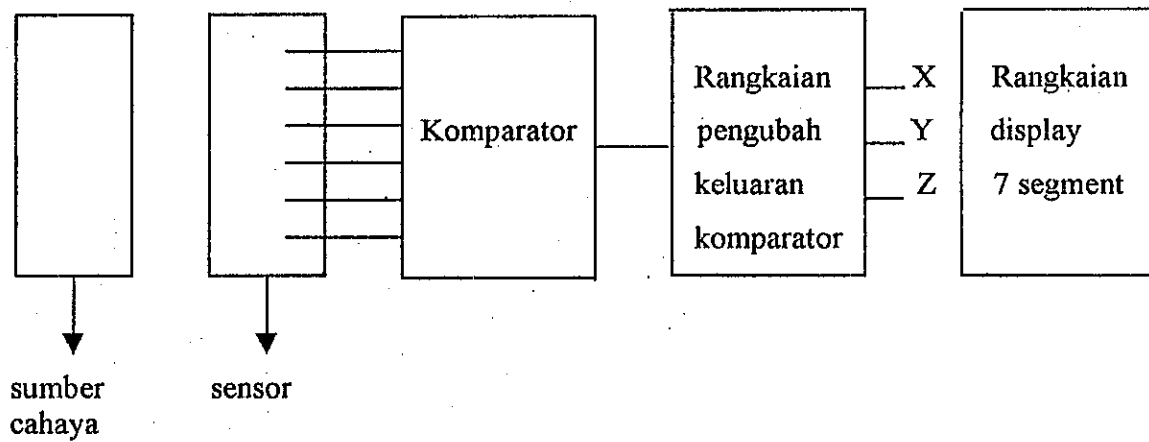
• Tabel 17 Larutan surfaktan ABS pada pH 8,8

No	Konsentrasi ABS (ppm)	Diameter (mm)	Tinggi Buih (cm)		
			1	2	Rata - rata
1	0	0	0	0	0
2	50	5	5	5.4	5.2
3	100	4	7.7	7.5	7.6
4	150	3	7.8	8	7.9
5	200	3	8.1	8	8.05
6	250	2	8.3	8.2	8.25
7	300	2	8.5	8.6	8.55
8	350	2	8.7	8.5	8.6
9	400	2	9	9	9
10	450	2	9.2	9.1	9.15
11	500	2	9.2	9.3	9.25



Lampiran 2

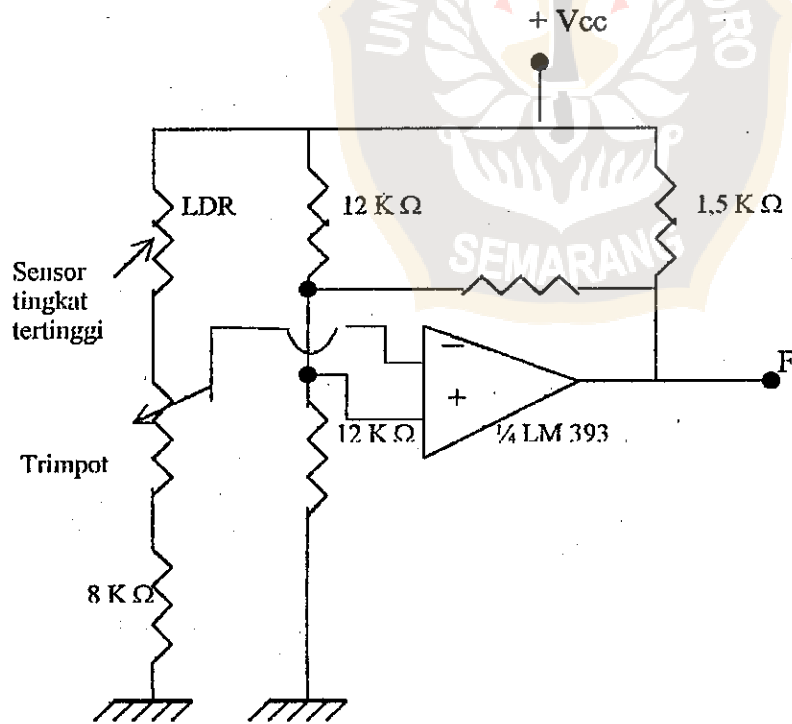
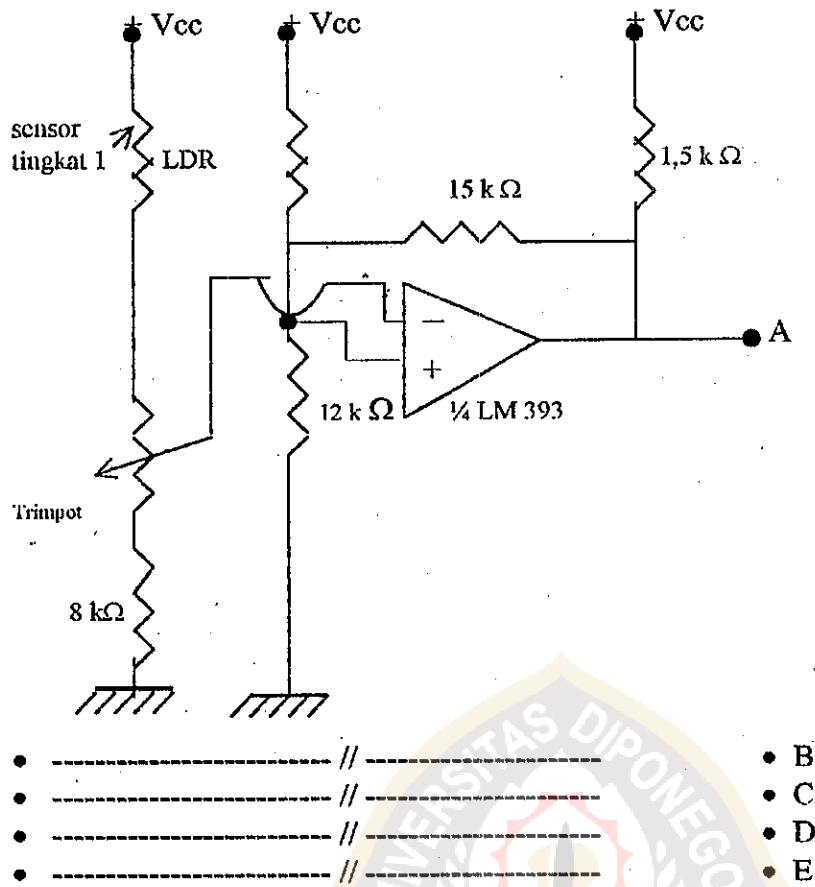
Bagan Alat Sensor



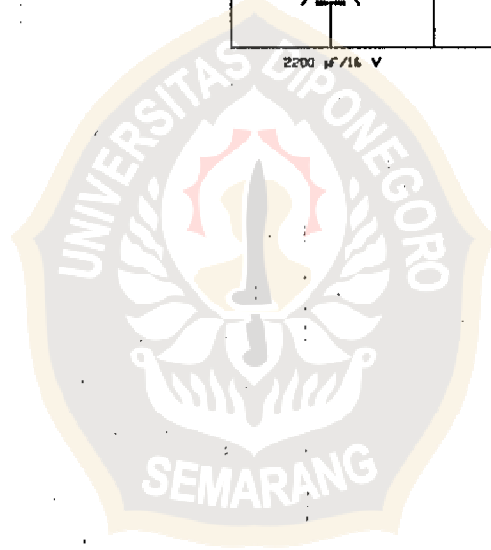
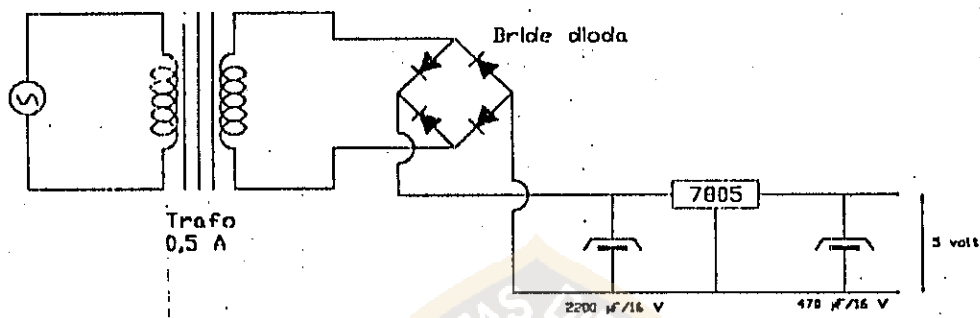
Prinsip Kerja :

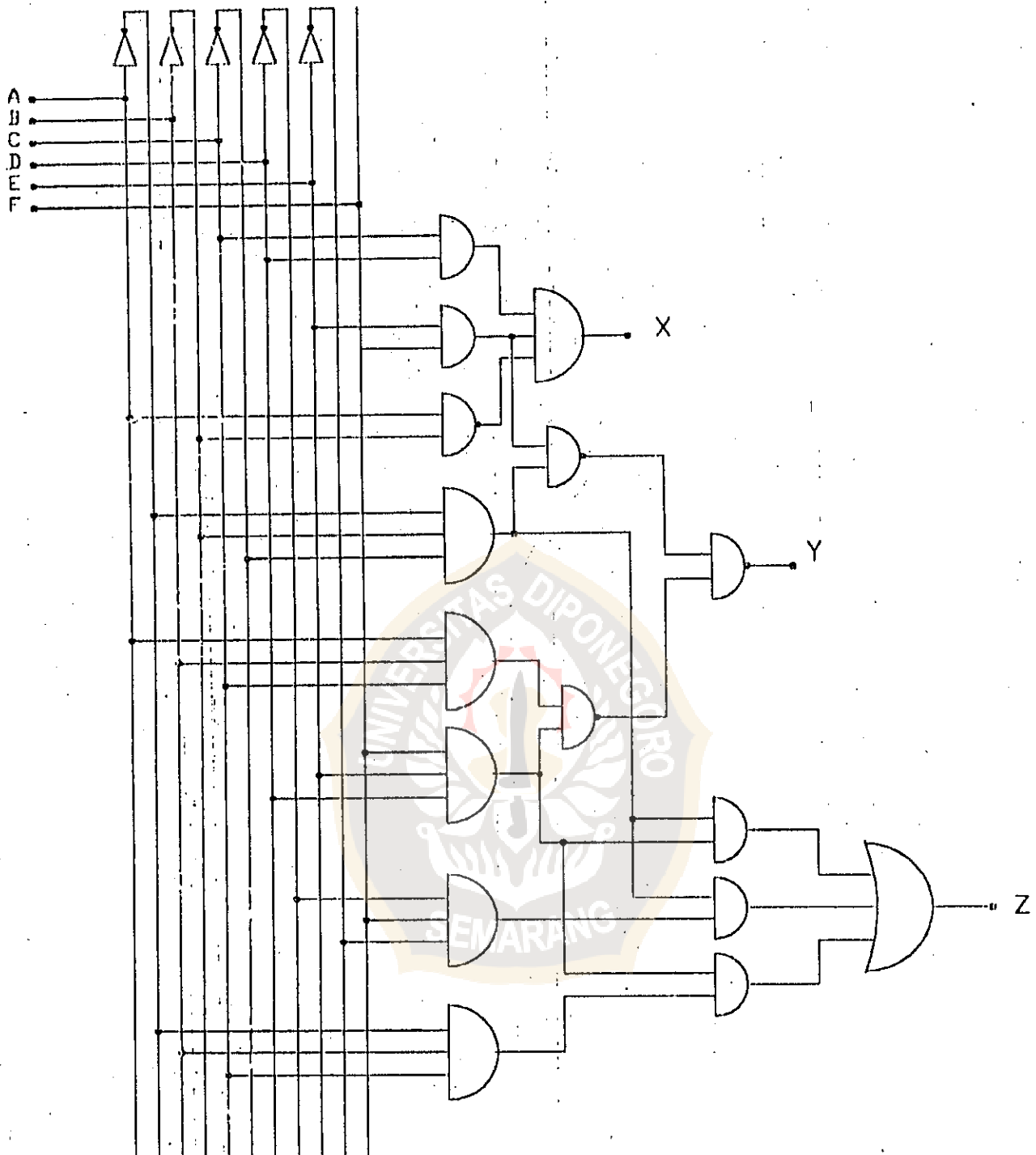
- Apabila LDR terkena cahaya maka resistansi akan menurun, akibatnya tegangan pada sisi membalik dari komparator akan membesar sehingga tegangan yang di hasilkan rendah sekitar 0 volt.
- Demikian pula sebaliknya apabila LDR tertutup/tidak terkena cahaya maka resistansi akan naik, akibatnya tegangan pada sisi membalik dari komparator akan menurun, sehingga tegangan yang di hasilkan tinggi sekitar 5 volt⁽³⁾.

•Rangkaian Alat Sensor



Rangkaian catu daya (komponen)





Rangkaian Pengubah Keluaran Komparator

Rangkaian display 7 segmen

