

LAMPIRAN 1. Data Nilai Numerator, Denominator, dan Peramalan Produk Akhir Untuk Item A, B, C

Item	FP	Numerator	Denominator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	888461	1	1	1,160	1,160	40	1,160	1,160	40	2,280	1,160	1,160	40	1,160	1,160
	888481	1	1	6,760	5,640	2,280	4,520	4,520	4,520	7,880	6,760	5,640	6,760	5,640	6,760
B	823759	1	3	13,000	9,000	4,000	5,000	5,000	8,000	8,000	9,000	9,000	7,000	10,000	17,000
	823818	1	3	5,000	4,000	-	3,000	-	-	3,000	-	3,000	3,000	-	7,000
	823824	1	3	3,000	4,000	2,000	-	2,000	-	2,000	2,000	2,000	3,000	2,000	3,000
	823872	1	3	9,000	6,000	4,000	4,000	4,000	4,000	6,000	8,000	6,000	6,000	4,000	11,000
	823883	1	3	2,000	-	-	-	-	-	-	-	2,000	-	-	2,000
C	851331	32	10	400	400	400	400	400	400	-	-	-	-	-	-
	851332	32	2	40	40	40	40	60	-	-	-	-	-	-	40
	851333	32	1	8,320	13,720	5,800	10,840	8,680	7,920	-	7,920	7,920	7,920	7,920	7,920
	851500	320	10	15,840	15,840	7,920	15,840	7,920	7,920	7,920	7,920	7,920	7,920	7,920	7,920
	851504	320	10	9,600	-	-	-	-	9,600	9,600	9,600	9,600	9,600	9,600	9,600
	851551	355	20	6	6	6	6	6	-	-	-	-	-	-	-
	851573	345	10	200	200	200	200	200	200	200	240	200	200	200	200
	851581	345	20	200	200	200	200	200	200	-	-	200	-	-	-
	851591	5	1	-	-	-	-	-	-	-	-	-	-	-	12
	851595	5	1	-	-	-	-	-	-	-	-	-	-	-	12
	851599	50	3	-	-	-	-	-	-	-	-	-	-	-	12
	851606	320	20	-	-	-	-	-	-	-	-	-	-	-	12

LAMPIRAN 2. Data Nilai Numerator, Denominator, dan Peramalan Produk Akhir Untuk Item D

FP	Numerator	Denominator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
823371	155	100	-	-	-	1,680	1,680	1,680	-	1,680	-	1,680	1,680	-
823373	155	100	-	1,680	-	-	-	-	-	-	-	-	1,680	-
823381	310	100	4,320	4,320	1,440	2,880	2,880	2,880	1,440	1,440	1,440	2,880	2,880	4,320
823382	310	100	1,440	1,440	-	-	-	-	-	-	-	1,440	1,440	1,440
823383	310	100	2,880	1,440	1,440	1,440	-	1,440	1,440	-	1,440	1,440	1,440	1,440
823384	310	100	1,440	1,440	-	-	-	-	-	-	-	1,440	-	1,440
823385	310	100	1,440	1,440	-	-	1,440	-	-	1,440	-	-	1,440	1,440
823391	620	100	3,600	1,200	1,200	-	1,200	1,200	-	1,200	-	2,400	3,000	2,400
823392	620	100	1,200	1,200	-	-	1,200	-	-	-	1,200	-	-	1,200
823393	620	100	1,200	-	1,800	-	-	-	-	1,200	-	1,200	1,200	1,200
823394	620	100	1,200	1,200	-	-	-	-	-	-	-	1,200	-	1,200
823395	620	100	1,200	-	-	-	-	-	-	-	-	-	1,200	1,200
823401	930	100	768	768	768	768	-	768	-	768	-	768	768	768
823403	930	100	768	-	768	-	-	768	-	-	-	768	-	768
823411	1240	100	720	-	-	-	-	-	-	-	-	720	-	-
823413	1240	100	-	-	-	720	-	-	-	-	-	-	720	-
823421	1550	100	-	576	-	576	-	-	576	-	-	576	-	-
823423	1550	100	576	-	-	-	576	576	-	-	576	-	-	576
823759	310	100	13,000	9,000	4,000	5,000	5,000	8,000	8,000	9,000	9,000	7,000	10,000	17,000
823760	310	100	7,000	4,000	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	9,000
823761	310	100	7,000	5,000	-	-	4,000	4,000	4,000	4,000	-	4,000	4,000	11,000
823762	310	100	9,000	8,000	-	4,000	4,000	4,000	4,000	4,000	4,000	4,000	6,000	15,000
823763	310	100	6,000	4,000	-	-	4,000	4,000	-	4,000	-	4,000	4,000	9,000
823764	310	100	7,000	4,000	-	4,000	-	-	4,000	4,000	-	4,000	4,000	9,000
823770	620	100	8,000	4,000	4,000	4,000	-	5,000	4,000	6,000	5,000	6,000	6,000	12,000
823771	620	100	4,000	4,000	4,000	-	4,000	4,000	-	5,000	4,000	4,000	4,000	6,000
823772	620	100	4,000	4,000	-	-	-	-	-	4,000	-	-	4,000	4,000
823773	620	100	4,000	4,000	-	-	-	-	4,000	-	4,000	-	4,000	7,000
823774	620	100	4,000	-	-	-	-	-	4,000	-	-	4,000	-	4,000

LAMPIRAN 2. Data Nilai Numerator, Denominator, dan Peramalan Produk Akhir Untuk Item D

FP	Numerator	Denominator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
823775	620	100	4,000	4,000	-	-	-	-	-	4,000	-	4,000	-	4,000
823781	930	100	3,008	3,008	3,008	-	3,008	3,008	3,008	3,008	3,008	3,008	3,008	6,032
823782	930	100	2,000	-	2,000	-	2,000	-	2,000	2,000	2,000	2,000	-	2,000
823783	930	100	-	2,000	-	-	-	-	-	-	2,000	-	2,000	2,000
823784	930	100	2,000	-	-	-	-	-	2,000	-	-	-	2,000	-
823785	930	100	-	-	-	-	-	2,000	-	-	-	2,000	-	2,000
823786	930	100	-	-	-	-	2,000	-	-	2,000	-	-	2,000	2,000
823792	1240	100	-	2,004	-	-	-	-	2,004	-	2,004	-	-	2,004
823793	1240	100	2,004	-	-	-	-	-	2,004	-	-	-	-	2,004
823807	1550	100	-	2,004	-	2,004	-	2,004	-	2,004	-	2,004	-	2,004
823808	1550	100	-	-	2,004	-	-	-	2,004	-	-	2,004	-	2,004
825301	310	100	60	60	60	60	60							
825308	310	100	60	60	60	60	60	-	60	-	-	-	-	60
896013	155	100	-	-	-	-	-							
897041	310	100	40	40	40	40	40	-	4,320	4,320	6,480	2,160	4,320	4,320
897042	310	100	40	40	40	40	40	-	2,160	4,320	4,320	-	2,160	4,320
897043	310	100	40	40	40	40	40	-	2,160	2,160	-	2,160	2,160	2,160
897044	310	100	40	40	40	40	40	-	2,160	2,160	4,320	-	2,160	2,160
897051	155	100	-	-	-	-	-	-	-	2,880	-	2,880	-	2,880
897052	155	100	-	-	-	-	-	-	-	-	-	2,880	2,880	-
897053	155	100	-	-	-	-	-	-	-	-	-	2,880	2,880	2,880
897054	155	100	-	-	-	-	-	5,760	2,880	-	-	-	-	-
897061	620	100	40	40	40	40	40	1,440	-	1,440	1,440	5,760	2,880	1,440
897062	620	100	40	40	40	40	40	-	-	-	-	1,440	-	-
897063	620	100	40	40	40	40	40	-	-	1,440	-	2,880	-	1,440
897064	620	100	40	40	40	40	40	-	-	-	-	4,320	-	-
897071	930	100	40	40	40	40	40	-	-	864	-	-	864	864
897073	930	100	40	40	40	40	40	-	-	864	-	-	-	864

LAMPIRAN 3. Data Nilai Numerator, Denominator, dan Peramalan Produk Akhir Untuk Item E

FP	Numerator	Denominator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
823710	345	100	3,030	2,010	2,010	2,010	-	2,010	2,010	2,010	4,000	4,000	2,010	5,070
823711	345	100	2,010	-	-	-	2,010	2,010	2,010	-	2,010	-	2,010	3,030
823712	345	100	2,010	-	-	2,010	-	2,010	-	2,010	2,010	2,010	2,010	3,030
823713	345	100	2,010	-	2,010	-	-	-	2,010	2,010	-	2,010	-	2,010
823714	345	100	-	2,010	-	-	-	2,010	-	2,010	-	2,010	-	2,010
823715	345	100	2,010	-	-	2,010	-	2,010	-	-	2,010	2,010	-	2,010
823721	575	100	-	2,010	2,010	2,010	-	2,010	2,010	3,030	2,010	2,010	3,030	4,050
823722	575	100	2,010	-	-	-	-	2,010	-	2,010	-	2,010	-	2,010
823723	575	100	2,010	-	2,010	-	-	-	2,010	-	2,010	-	2,010	4,050
823724	575	100	2,010	-	2,010	-	2,010	-	2,010	2,010	-	2,010	-	3,030
823725	575	100	-	2,010	-	-	-	2,010	-	2,010	-	2,010	-	3,030
823726	575	100	2,010	-	-	-	-	-	2,010	-	2,010	-	2,010	2,010
823732	805	100	1,200	-	1,600	1,200	-	1,200	1,600	1,600	1,600	1,600	3,000	2,400
823733	805	100	1,200	-	1,200	-	1,200	-	1,200	1,200	1,200	-	1,200	1,200
823734	805	100	1,200	-	-	1,600	-	1,200	-	1,200	1,200	-	1,200	1,600
823735	805	100	-	1,200	1,200	-	-	-	1,200	1,200	1,200	-	1,200	1,200
823736	805	100	1,200	-	1,200	-	1,200	1,200	-	1,200	1,200	-	-	1,200
823737	805	100	-	1,200	-	1,200	-	-	-	1,200	1,200	-	-	1,600
823743	60	10	5,000	4,000	-	-	4,000	-	-	4,000	-	-	4,000	-
823753	150	10	5,000	5,000	5,000	5,000	5,000	6,000	5,000	7,000	5,000	5,000	5,000	10,000
834561	310	100	-	-	960	960	960	2,880	960	960	960	1,920	2,880	-
834562	310	100	-	-	960	-	960	-	960	960	-	960	960	-
834563	310	100	-	-	960	-	960	1,920	960	960	960	1,920	1,920	-
834564	310	100	-	-	960	-	120	-	960	-	960	960	960	-
834565	310	100	-	-	-	-	-	-	960	-	-	960	960	-
834571	465	100	20	720	1,440	740	1,460	3,600	1,460	1,440	2,160	2,160	3,600	720
834572	465	100	-	-	-	720	720	-	740	720	720	720	1,440	-
834573	465	100	20	740	1,440	720	720	720	1,460	720	1,440	1,440	1,440	720
834574	465	100	-	-	720	720	720	720	720	720	720	1,440	1,440	-

LAMPIRAN 3. Data Nilai Numerator, Denominator, dan Peramalan Produk Akhir Untuk Item E

FP	Numerator	Denominator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
834575	465	100	-	-	720	720	720	720	720	720	720	720	1,440	-
834581	620	100	-	480	-	480	480	1,440	480	480	480	960	960	-
834582	620	100	-	-	-	480	-	-	-	480	-	480	480	-
834583	620	100	-	-	-	480	-	480	480	480	480	480	960	-
834584	620	100	-	-	-	-	480	-	-	-	480	-	480	-
834585	620	100	-	-	-	480	-	-	480	-	-	480	480	-
851181	465	100	20	20	20	18,740	20	-	20	1,440	-	1,440	-	1,440
851182	775	100	-	1,920	3,840	2,880	960	1,920	1,920	1,920	3,840	2,880	4,800	960
851183	1085	100	-	-	-	-	-	-	-	9,360	-	-	-	-
851185	465	100	-	-	-	-	4,320	-	-	1,440	-	1,440	-	1,440
851187	465	100	-	1,440	-	1,440	1,440	-	1,440	1,440	-	-	1,440	-
851188	465	100	-	-	1,440	1,440	-	-	-	1,440	-	1,440	1,440	-
851189	465	100	-	-	1,440	-	-	-	-	1,440	-	-	1,440	-
851190	465	100	-	-	1,440	1,440	-	-	-	1,440	1,440	1,440	1,440	-
851194	775	100	-	960	-	-	960	960	960	960	960	960	960	-
851195	775	100	-	960	960	1,920	-	-	960	960	960	960	1,920	-
851196	775	100	-	960	1,920	960	960	960	960	960	960	960	1,920	-
851197	775	100	-	960	2,880	960	960	-	960	960	960	1,920	1,920	-
851198	775	100	-	960	-	960	-	-	-	960	960	960	960	-
851361	620	100	3,640	40	40	3,640	40	40	-	3,600	40	-	-	3,640
851362	1550	100	1,440	1,440	2,880	-	1,440	1,440	1,440	1,440	1,440	1,440	1,440	2,880
851363	620	100	-	-	-	3,600	-	-	-	-	-	-	3,600	-
851364	620	100	-	40	40	40	40	-	-	-	3,600	-	-	-
851365	620	100	40	40	40	40	40	-	-	-	-	-	-	40
851366	620	100	-	-	-	40	40	-	-	-	-	40	-	-
851367	620	100	-	-	-	40	40	-	-	-	-	-	-	-
851368	1550	100	-	-	-	-	1,440	-	-	1,440	-	-	-	-
851369	1550	100	-	1,440	-	-	-	-	-	-	-	-	-	1,440
851370	1550	100						-	-	-	-	-	-	-

LAMPIRAN 3. Data Nilai Numerator, Denominator, dan Peramalan Produk Akhir Untuk Item E

FP	Numerator	Denominator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
851373	1550	100	-	-	-	1,440	-	-	-	-	-	-	-	-
851374	1550	100	-	-	-	-	-	-	-	-	-	-	-	-
851505	155	5	1,440	-	-	-	-	-	-	-	-	-	1,440	-
851506	155	5	-	1,440	-	-	-	-	-	-	1,440	-	-	-
851830	1	240	-	-	-	-	-	-	-	1,000	-	-	-	-
856271	1	325	-	-	-	-	-	-	-	-	-	-	-	-
856272	1	290	-	-	-	-	-	-	-	-	-	-	-	-
863685	115	10	-	-	-	-	-	-	-	-	-	-	-	192
863686	1725	100	-	-	-	-	-	-	-	144	-	-	-	-
872480	155	10	-	-	-	-	-	1,440	-	-	-	-	-	-
872490	155	5	-	720	-	-	-	-	720	-	-	-	-	720
872491	310	100	40	40	40	2,440	40	2,440	40	40	2,440	40	40	2,440
872881	310	10	-	-	480	-	-	-	-	-	480	-	-	-
872882	310	10	-	-	-	-	-	-	-	-	480	-	-	-
899362	1	325	80	80	80	80	80	-	80	-	80	80	80	80
899363	1	65	80	80	80	80	80	80	-	-	-	80	80	80
899364	1	290	80	80	80	80	80	80	80	-	80	80	80	80
899365	1	58	80	80	80	80	80	-	-	-	80	-	80	80

LAMPIRAN 4. Data-data Mesin *Extrusion*

Tabel 1. *Time Available Mesin Extrusion Tahun 2015*

BULAN	P101	P102	P103	P104	P105	P106	P107	P108
Jan	-	41,760	41,760	41,760	41,760	41,760	41,760	41,760
Feb	-	40,320	40,320	40,320	40,320	40,320	40,320	40,320
Mar	-	44,640	44,640	44,640	44,640	44,640	44,640	44,640
Apr	-	41,760	41,760	41,760	41,760	-	41,760	41,760
May	-	41,760	41,760	41,760	41,760	41,760	41,760	41,760
Jun	-	41,760	41,760	41,760	41,760	-	41,760	41,760
Jul	-	34,560	34,560	34,560	34,560	-	34,560	34,560
Aug	44,640	44,640	44,640	44,640	44,640	44,640	44,640	44,640
Sep	43,200	43,200	43,200	43,200	43,200	43,200	43,200	43,200
Oct	44,640	44,640	44,640	44,640	44,640	44,640	44,640	44,640
Nov	43,200	43,200	43,200	43,200	43,200	43,200	43,200	43,200
Dec	44,640	44,640	44,640	44,640	44,640	44,640	44,640	44,640

Tabel 2. *Loss Time Mesin Extrusion Tahun 2015*

BULAN	P101	P102	P103	P104	P105	P106	P107	P108
Jan	-	7,980	7,833	4,689	5,717	9,245	8,833	8,656
Feb	-	8,416	7,784	8,304	6,290	8,750	7,615	8,809
Mar	-	7,003	7,692	6,823	7,289	8,640	8,635	7,880
Apr	-	6,849	5,219	8,432	8,081	-	5,699	6,862
May	-	6,444	6,538	8,676	5,067	6,821	10,280	8,770
Jun	-	6,300	7,858	7,915	3,839	-	8,657	6,214
Jul	-	4,316	6,172	9,522	5,437	-	4,227	10,067
Aug	9,397	6,192	6,828	7,674	3,305	8,365	7,276	8,721
Sep	6,821	7,717	4,273	5,907	5,576	12,207	8,297	6,191
Oct	8,307	8,425	5,503	8,323	6,382	10,094	9,448	11,271
Nov	6,414	4,210	7,133	5,344	6,775	8,937	7,759	5,947
Dec	4,191	4,564	6,852	9,301	6,280	4,226	8,564	7,080

Tabel 3 Rekapitulasi Faktor Utilitas Masing-Masing Mesin *Extrusion* Tahun 2015

BULAN	P101	P102	P103	P104	P105	P106	P107	P108
Januari	-	0.81	0.81	0.89	0.86	0.78	0.79	0.79
Februari	-	0.79	0.81	0.79	0.84	0.78	0.81	0.78
Maret	-	0.84	0.83	0.85	0.84	0.81	0.81	0.82
April	-	0.84	0.88	0.80	0.81	-	0.86	0.84
Mei	-	0.85	0.84	0.79	0.88	0.84	0.75	0.79
Juni	-	0.85	0.81	0.81	0.91	-	0.79	0.85
Juli	-	0.88	0.82	0.72	0.84	-	0.88	0.71
Agustus	0.79	0.86	0.85	0.83	0.93	0.81	0.84	0.80
September	0.84	0.82	0.90	0.86	0.87	0.72	0.81	0.86
Oktober	0.81	0.81	0.88	0.81	0.86	0.77	0.79	0.75
November	0.85	0.90	0.83	0.88	0.84	0.79	0.82	0.86
Desember	0.91	0.90	0.85	0.79	0.86	0.91	0.81	0.84
Rata-rata	0.84	0.85	0.84	0.82	0.86	0.80	0.81	0.81

Tabel 4. Nilai *Good Product* Mesin *Extrusion* Tahun 2015

BULAN	P101	P102	P103	P104	P105	P106	P107	P108
Jan	-	92.6%	90.8%	95.9%	95.5%	91.4%	90.8%	94.5%
Feb	-	95.5%	92.9%	90.0%	94.5%	78.9%	88.1%	87.5%
Mar	-	93.7%	94.1%	93.8%	96.3%	0.0%	93.0%	92.2%
Apr	-	95.5%	94.4%	90.4%	94.8%	-	91.3%	97.6%
May	-	92.3%	93.5%	96.5%	96.7%	89.5%	90.7%	94.5%
Jun	-	93.9%	89.5%	92.9%	91.4%	-	85.5%	93.1%
Jul	-	95.3%	94.9%	94.9%	95.4%	-	91.6%	94.5%
Aug	85.5%	93.0%	95.9%	91.0%	95.4%	87.1%	92.7%	97.1%
Sep	84.9%	91.6%	92.8%	90.0%	88.2%	81.0%	89.3%	91.2%
Oct	83.8%	86.8%	93.1%	84.8%	86.0%	88.1%	85.8%	79.7%
Nov	91.5%	91.7%	89.9%	90.9%	92.0%	90.6%	86.9%	86.0%
Dec	91.5%	93.7%	89.9%	92.0%	91.2%	91.8%	91.6%	95.2%

Tabel 5 Faktor Efisiensi Masing-masing Mesin *Extrusion* Tahun 2015

BULAN	P101	P102	P103	P104	P105	P106	P107	P108
Januari	-	92.6%	90.8%	95.9%	95.5%	91.4%	90.8%	9.2%
Februari	-	95.5%	92.9%	90.0%	94.5%	78.9%	88.1%	11.9%
Maret	-	93.7%	94.1%	93.8%	96.3%	0.0%	93.0%	7.0%
April	-	95.5%	94.4%	90.4%	94.8%	-	91.3%	8.7%
Mei	-	92.3%	93.5%	96.5%	96.7%	89.5%	90.7%	9.3%
Juni	-	93.9%	89.5%	92.9%	91.4%	-	85.5%	14.5%
Juli	-	95.3%	94.9%	94.9%	95.4%	-	91.6%	8.4%
Agustus	85.5%	93.0%	95.9%	91.0%	95.4%	87.1%	92.7%	7.3%
September	84.9%	91.6%	92.8%	90.0%	88.2%	81.0%	89.3%	10.7%
Oktober	83.8%	86.8%	93.1%	84.8%	86.0%	88.1%	85.8%	14.2%
November	91.5%	91.7%	89.9%	90.9%	92.0%	90.6%	86.9%	13.1%
Desember	91.5%	93.7%	89.9%	92.0%	91.2%	91.8%	91.6%	8.4%
Rata-rata	87%	93%	93%	92%	93%	78%	90%	10%

LAMPIRAN 5. Data Persediaan

Bulan	A	B	C	D	E
Jan	17,600	3,000	136,950	121,300	201,400
Feb	6,000	4,100	87,600	224,575	174,250
Mar	-	1,025	-	189,500	206,025
Apr	5,600	2,000	75,000	99,625	80,075
May	7,200	2,150	-	-	-
Jun	5,900	3,250	-	103,975	129,350
Jul	5,625	1,100	-	65,150	85,500
Aug	8,500	6,600	143,300	108,250	120,575
Sep	7,350	12,375	-	18,700	68,175
Oct	-	1,600	50,700	129,300	257,550
Nov	600	-	-	-	-
Dec	108,050	800	-	-	196,975
Total	172,425	38,000	493,550	1,060,375	1,519,875



Lampiran 6. Pemenuhan Kendala Tujuan Tingkat Persediaan

Ib	Target	dn	dp	Value	Keterangan Target
Januari	0	0	0	0	Tercapai
Februari	0	0	3,333	3,333	Tercapai
Maret	0	0	0	0	Tercapai
April	0	0	3,667	3,667	Tercapai
Mei	0	0	0	0	Tercapai
Juni	0	0	6,333	6,333	Tercapai
Juli	0	0	0	0	Tercapai
Agustus	0	0	0	0	Tercapai
September	0	0	0	0	Tercapai
Oktober	0	0	0	0	Tercapai
November	0	0	0	0	Tercapai
Desember	0	0	0	0	Tercapai
				13,333	

Ic	Target	dn	dp	Value	Keterangan Target
Januari	0	0	0	0	Tercapai
Februari	0	0	0	0	Tercapai
Maret	0	0	133,525	133,525	Tercapai
April	0	0	8,607	8,607	Tercapai
Mei	0	0	141,048	141,048	Tercapai
Juni	0	0	56,557	56,557	Tercapai
Juli	0	0	102,433	102,433	Tercapai
Agustus	0	0	72,407	72,407	Tercapai
September	0	0	45,119	45,119	Tercapai
Oktober	0	0	16,473	16,473	Tercapai
November	0	0	29,799	29,799	Tercapai
Desember	0	0	0	0	Tercapai
				605,967	

Id	Target	dn	dp	Value	Keterangan Target
Januari	0	0	96,418	96,418	Tercapai
Februari	0	0	184,053	184,053	Tercapai
Maret	0	0	0	0	Tercapai
April	0	0	197,482	197,482	Tercapai
Mei	0	0	0	0	Tercapai
Juni	0	0	51,013	51,013	Tercapai
Juli	0	0	92,825	92,825	Tercapai
Agustus	0	0	143,728	143,728	Tercapai
September	0	0	219,980	219,980	Tercapai
Oktober	0	0	0	0	Tercapai
November	0	0	0	0	Tercapai
Desember	0	0	0	0	Tercapai
				985,499	

Ie	Target	dn	dp	Value	Keterangan Target
Januari	0	0	688,775	688,775	Tercapai
Februari	0	0	352,366	352,366	Tercapai
Maret	0	0	0	0	Tercapai
April	0	0	274,889	274,889	Tercapai
Mei	0	0	0	0	Tercapai
Juni	0	0	47,582	47,582	Tercapai
Juli	0	0	0	0	Tercapai
Agustus	0	0	74,695	74,695	Tercapai
September	0	0	0	0	Tercapai
Oktober	0	0	514,546	514,546	Tercapai
November	0	0	0	0	Tercapai
Desember	0	0	0	0	Tercapai
				1,952,853	



Lampiran 7. Pemenuhan Kendala Tujuan Jam Kerja Mesin

➤ Mesin T-Die

Bulan	Tdie2	dn	dp	Keterangan Target
Jan	27,952	27,952	0	Tercapai
Feb	24,225	16,896	0	Tercapai
Mar	26,089	26,089	0	Tercapai
Apr	27,021	27,021	0	Tercapai
May	24,225	24,225	0	Tercapai
Jun	25,157	21,037	0	Tercapai
Jul	22,362	22,362	0	Tercapai
Aug	28,884	28,884	0	Tercapai
Sep	25,157	25,157	0	Tercapai
Oct	26,089	26,089	0	Tercapai
Nov	25,157	25,157	0	Tercapai
Dec	25,157	25,157	0	Tercapai

Bulan	Tdie3	dn	dp	Keterangan Target
Jan	29,248	29,248	0	Tercapai
Feb	27,159	27,159	0	Tercapai
Mar	31,337	31,337	0	Tercapai
Apr	30,293	30,293	0	Tercapai
May	30,293	30,293	0	Tercapai
Jun	30,293	30,293	0	Tercapai
Jul	25,070	25,070	0	Tercapai
Aug	32,382	32,382	0	Tercapai
Sep	26,114	26,114	0	Tercapai
Oct	28,204	28,204	0	Tercapai
Nov	26,114	26,114	0	Tercapai
Dec	26,114	26,114	0	Tercapai

Bulan	Tdie5	dn	dp	Keterangan Target
Jan	35,375	0	0	Tercapai
Feb	33,016	0	0	Tercapai
Mar	35,375	0	0	Tercapai
Apr	34,196	0	0	Tercapai
May	34,196	0	0	Tercapai
Jun	34,196	0	0	Tercapai
Jul	28,300	0	0	Tercapai
Aug	36,554	0	0	Tercapai
Sep	34,196	0	0	Tercapai
Oct	36,554	0	0	Tercapai
Nov	34,196	0	0	Tercapai
Dec	36,554	0	0	Tercapai

Bulan	Tdie6	dn	dp	Keterangan Target
Jan	30,369	28,554	0	Tercapai
Feb	29,322	29,322	0	Tercapai
Mar	31,416	31,416	0	Tercapai
Apr	30,369	30,369	0	Tercapai
May	30,369	30,369	0	Tercapai
Jun	30,369	30,369	0	Tercapai
Jul	25,133	25,133	0	Tercapai
Aug	32,463	32,463	0	Tercapai
Sep	29,322	29,322	0	Tercapai
Oct	30,369	30,369	0	Tercapai
Nov	28,275	28,275	0	Tercapai
Dec	29,322	29,322	0	Tercapai

➤ **Mesin Extrusion**

Bulan	P101	dn	dp	Keterangan Target
Jan	-	-	-	-
Feb	-	-	-	-
Mar	-	-	-	-
Apr	-	-	-	-
May	-	-	-	-
Jun	-	-	-	-
Jul	-	-	-	-
Aug	32,577	22,708	0	Tercapai
Sep	31,526	29,586	0	Tercapai
Oct	32,577	32,577	0	Tercapai
Nov	31,526	31,526	0	Tercapai
Dec	32,577	32,577	0	Tercapai

Bulan	P102	dn	dp	Keterangan Target
Jan	32,828	26,532	0	Tercapai
Feb	31,696	15,813	0	Tercapai
Mar	35,092	35,092	0	Tercapai
Apr	32,828	3,551	0	Tercapai
May	32,828	32,828	0	Tercapai
Jun	32,828	32,828	0	Tercapai
Jul	27,168	27,168	0	Tercapai
Aug	35,092	10,581	0	Tercapai
Sep	33,960	33,960	0	Tercapai
Oct	35,092	25,960	0	Tercapai
Nov	33,960	0	0	Tercapai
Dec	35,092	19,406	0	Tercapai

Bulan	P103	dn	dp	Keterangan Target
Jan	32,704	0	0	Tercapai
Feb	31,576	0	0	Tercapai
Mar	34,959	34,959	0	Tercapai
Apr	32,704	0	0	Tercapai
May	32,704	32,704	0	Tercapai
Jun	32,704	32,704	0	Tercapai
Jul	27,065	27,065	0	Tercapai
Aug	34,959	0	0	Tercapai
Sep	33,832	0	0	Tercapai
Oct	34,959	5,630	0	Tercapai
Nov	33,832	33,832	0	Tercapai
Dec	34,959	34,959	0	Tercapai

Bulan	P104	dn	dp	Keterangan Target
Jan	31,462	0	0	Tercapai
Feb	30,377	30,377	0	Tercapai
Mar	33,632	33,632	0	Tercapai
Apr	31,462	31,462	0	Tercapai
May	31,462	31,462	0	Tercapai
Jun	31,462	31,462	0	Tercapai
Jul	26,038	16,039	0	Tercapai
Aug	33,632	0	0	Tercapai
Sep	32,547	32,547	0	Tercapai
Oct	33,632	0	0	Tercapai
Nov	32,547	32,547	0	Tercapai
Dec	33,632	0	0	Tercapai

Bulan	P105	dn	dp	Keterangan Target
Jan	33,452	0	0	Tercapai
Feb	32,298	32,298	0	Tercapai
Mar	35,759	35,759	0	Tercapai
Apr	33,452	33,452	0	Tercapai
May	33,452	33,452	0	Tercapai
Jun	33,452	0	0	Tercapai
Jul	27,684	0	0	Tercapai
Aug	35,759	35,759	0	Tercapai
Sep	34,605	0	0	Tercapai
Oct	35,759	0	0	Tercapai
Nov	34,605	26,330	0	Tercapai
Dec	35,759	0	0	Tercapai

Bulan	P106	dn	dp	Keterangan Target
Jan	25,925	25,925	0	Tercapai
Feb	25,031	25,031	0	Tercapai
Mar	27,936	27,936	0	Tercapai
Apr	-	-	-	Tercapai
May	25,925	25,925	0	Tercapai
Jun	-	-	-	Tercapai
Jul	-	-	-	Tercapai
Aug	27,713	27,713	0	Tercapai
Sep	26,819	26,819	0	Tercapai
Oct	27,713	27,713	0	Tercapai
Nov	26,819	26,819	0	Tercapai
Dec	27,713	27,713	0	Tercapai

Bulan	P107	dn	dp	Keterangan Target
Jan	30,555	30,555	0	Tercapai
Feb	29,501	29,501	0	Tercapai
Mar	32,662	32,662	0	Tercapai
Apr	30,555	0	0	Tercapai
May	30,555	30,555	0	Tercapai
Jun	30,555	30,555	0	Tercapai
Jul	25,287	25,287	0	Tercapai
Aug	32,662	32,662	0	Tercapai
Sep	31,609	31,609	0	Tercapai
Oct	32,662	32,662	0	Tercapai
Nov	31,609	31,609	0	Tercapai
Dec	32,662	0	0	Tercapai

Bulan	P108	dn	dp	Keterangan Target
Jan	31,042	31,042	0	Tercapai
Feb	29,972	29,972	0	Tercapai
Mar	33,183	33,183	0	Tercapai
Apr	31,042	28,031	0	Tercapai
May	31,042	31,042	0	Tercapai
Jun	31,042	0	0	Tercapai
Jul	25,690	1,357	0	Tercapai
Aug	33,183	33,183	0	Tercapai
Sep	32,113	32,113	0	Tercapai
Oct	33,183	33,183	0	Tercapai
Nov	32,113	32,113	0	Tercapai
Dec	33,183	18,954	0	Tercapai

Lampiran 8. Jumlah Produksi di Masing-masing Mesin

Xa	m	n	o	r	Total
Jan				2,320	2,320
Feb		12,489			12,489
Mar					0
Apr	7,991				7,991
May					0
Jun	14,720				14,720
Jul					0
Aug	7,920				7,920
Sep	13,600				13,600
Oct					0
Nov	6,800				6,800
Dec	16,900				16,900

Xb	m	n	o	r	Total
Jan				3,967	3,967
Feb		11,000			11,000
Mar					0
Apr	7,667				7,667
May					0
Jun	10,333				10,333
Jul					0
Aug	6,333				6,333
Sep	7,333				7,333
Oct	6,333				6,333
Nov	5,333				5,333
Dec	13,333				13,333

Xc	p	q	Total
Jan	638,057	368,490	1,006,547
Feb	614,380	343,917	958,297
Mar	216,452	368,490	584,942
Apr	385,010	356,208	741,219
May	320,130	356,208	676,338
Jun	385,010	356,208	741,219
Jul	318,625	294,792	613,417
Aug	411,563	380,771	792,333
Sep	440,934	356,208	797,143
Oct	411,563	380,771	792,333
Nov	478,098	356,208	834,306
Dec	411,563	380,771	792,333

Xd	s	t	u	v	w	x	y	z	Total
Jan				327,729					327,729
Feb		165,450	328,917						494,367
Mar									0
Apr							318,281	31,361	349,642
May									0
Jun								323,354	323,354
Jul				104,159	288,375				392,534
Aug	102,803		364,156						466,960
Sep	20,204				360,469				380,673
Oct			305,507						305,507
Nov		353,750			86,202				439,952
Dec				350,333	372,490			148,215	871,038

Xe	s	t	u	v	w	x	y	z	Total
Jan		69,952	363,378		371,689				805,019
Feb									0
Mar									0
Apr		325,301	363,378						688,679
May									0
Jun					371,689				371,689
Jul								270,368	270,368
Aug		272,347		373,689					646,036
Sep			375,911						375,911
Oct		101,465		373,689	397,322				872,476
Nov									0
Dec		174,285					362,911		537,196

LAMPIRAN 9. Skrip LINGO Model Goal Programming

```

MIN = (dn1 + dn2 + dn3 + dn4 + dn5 + dn6 + dn7 + dn8 + dn9 + dn10 +
dn11 + dn12 + dn13 + dn14 + dn15 + dn16 + dn17 + dn18 + dn19 + dn20 + dn21 +
dn22 + dn23 + dn24 + dn25 + dn26 + dn27 + dn28 + dn29 + dn30 + dn31 + dn32 +
dn33 + dn34 + dn35 + dn36 + dn37 + dn38 + dn39 + dn40 + dn41 + dn42 + dn43 +
dn44 + dn45 + dn46 + dn47 + dn48 + dn49 + dn50 + dn51 + dn52 + dn53 + dn54 +
dn55 + dn56 + dn57 + dn58 + dn59 + dn60) + (dp61 + dp62 + dp63 + dp64 + dp65 +
dp66 + dp67 + dp68 + dp69 + dp70 + dp71 + dp72 + dp73 + dp74 + dp75 + dp76 +
dp77 + dp78 + dp79 + dp80 + dp81 + dp82 + dp83 + dp84 + dp85 + dp86 + dp87 +
dp88 + dp89 + dp90 + dp91 + dp92 + dp93 + dp94 + dp95 + dp96 + dp97 + dp98 +
dp99 + dp100 + dp101 + dp102 + dp103 + dp104 + dp105 + dp106 + dp107 + dp108 + dp109 +
dp110 + dp111 + dp112 + dp113 + dp114 + dp115 + dp116 + dp117 + dp118 + dp119 + dp120 +
dp121 + dp122 + dp123 + dp124 + dp125 + dp126 + dp127 + dp128 + dp129 + dp130 + dp131 +
dp132 + dp133 + dp134 + dp135 + dp136 + dp137 + dp138 + dp139 + dp140 + dp141 + dp142 +
dp143 + dp144 + dp145 + dp146 + dp147 + dp148 + dp149 + dp150 + dp151 + dp152 + dp153 +
dp154 + dp155 + dp156 + dp157 + dp158 + dp159 + dp160 + dp161 + dp162 + dp163 + dp164 +
dp165 + dp166 + dp167 + dp168 + dp169 + dp170 + dp171 + dp172 + dp173 + dp174 + dp175 +
dp176 + dp177 + dp178 + dp179 + dp180 + dp181 + dp182 + dp183 + dp184 + dp185 + dp186 +
dp187 + dp188 + dp189 + dp190 + dp191 + dp192 + dp193 + dp194 + dp195 + dp196 + dp197 +
dp198 + dp199 + dp200 + dp201 + dp202 + dp203 + dp204 + dp205 + dp206 + dp207 + dp208 +
dp209 + dp210 + dp211 + dp212 + dp213 + dp214 + dp215 + dp216 + dp217 + dp218) + (dp219 +
dp220 + dp221 + dp222 + dp223 + dp224 + dp225 + dp226 + dp227 + dp228 + dp229 + dp230);

```

```

!Subject To;
Ia0 = 5600;
Ib0 = 6700;
Ic0 = 86150;
Id0 = 306750;
Ie0 = 202000;

```

```

Xa1 = Xam1 + Xan1 + Xao1 + Xar1;
Xa2 = Xam2 + Xan2 + Xao2 + Xar2;
Xa3 = Xam3 + Xan3 + Xao3 + Xar3;
Xa4 = Xam4 + Xan4 + Xao4 + Xar4;
Xa5 = Xam5 + Xan5 + Xao5 + Xar5;
Xa6 = Xam6 + Xan6 + Xao6 + Xar6;
Xa7 = Xam7 + Xan7 + Xao7 + Xar7;
Xa8 = Xam8 + Xan8 + Xao8 + Xar8;
Xa9 = Xam9 + Xan9 + Xao9 + Xar9;
Xa10 = Xam10 + Xan10 + Xao10 + Xar10;
Xa11 = Xam11 + Xan11 + Xao11 + Xar11;
Xa12 = Xam12 + Xan12 + Xao12 + Xar12;

```

```

Xb1 = Xbm1 + Xbn1 + Xbo1 + Xbr1;
Xb2 = Xbm2 + Xbn2 + Xbo2 + Xbr2;
Xb3 = Xbm3 + Xbn3 + Xbo3 + Xbr3;
Xb4 = Xbm4 + Xbn4 + Xbo4 + Xbr4;
Xb5 = Xbm5 + Xbn5 + Xbo5 + Xbr5;
Xb6 = Xbm6 + Xbn6 + Xbo6 + Xbr6;
Xb7 = Xbm7 + Xbn7 + Xbo7 + Xbr7;
Xb8 = Xbm8 + Xbn8 + Xbo8 + Xbr8;
Xb9 = Xbm9 + Xbn9 + Xbo9 + Xbr9;
Xb10 = Xbm10 + Xbn10 + Xbo10 + Xbr10;
Xb11 = Xbm11 + Xbn11 + Xbo11 + Xbr11;
Xb12 = Xbm12 + Xbn12 + Xbo12 + Xbr12;

```

```

Xc1 = Xcp1 + Xcq1;
Xc2 = Xcp2 + Xcq2;
Xc3 = Xcp3 + Xcq3;
Xc4 = Xcp4 + Xcq4;
Xc5 = Xcp5 + Xcq5;
Xc6 = Xcp6 + Xcq6;
Xc7 = Xcp7 + Xcq7;
Xc8 = Xcp8 + Xcq8;
Xc9 = Xcp9 + Xcq9;
Xc10 = Xcp10 + Xcq10;
Xc11 = Xcp11 + Xcq11;
Xc12 = Xcp12 + Xcq12;

```

```

Xd1 = Xdt1 + Xdu1 + Xdv1 + Xdw1 + Xdx1 + Xdy1 + Xdz1;
Xd2 = Xdt2 + Xdu2 + Xdv2 + Xdw2 + Xdx2 + Xdy2 + Xdz2;
Xd3 = Xdt3 + Xdu3 + Xdv3 + Xdw3 + Xdx3 + Xdy3 + Xdz3;
Xd4 = Xdt4 + Xdu4 + Xdv4 + Xdw4 + Xdx4 + Xdy4 + Xdz4;
Xd5 = Xdt5 + Xdu5 + Xdv5 + Xdw5 + Xdx5 + Xdy5 + Xdz5;
Xd6 = Xdt6 + Xdu6 + Xdv6 + Xdw6 + Xdx6 + Xdy6 + Xdz6;

```



```

Xd7 = Xdt7 + Xdu7 + Xdv7 + Xdw7 + Xdy7 + Xdz7;
Xd8 = Xds8 + Xdt8 + Xdu8 + Xdv8 + Xdw8 + Xdx8 + Xdy8 + Xdz8;
Xd9 = Xds9 + Xdt9 + Xdu9 + Xdv9 + Xdw9 + Xdx9 + Xdy9 + Xdz9;
Xd10 = Xds10 + Xdt10 + Xdu10 + Xdv10 + Xdw10 + Xdx10 + Xdy10 + Xdz10;
Xd11 = Xds11 + Xdt11 + Xdu11 + Xdv11 + Xdw11 + Xdx11 + Xdy11 + Xdz11;
Xd12 = Xds12 + Xdt12 + Xdu12 + Xdv12 + Xdw12 + Xdx12 + Xdy12 + Xdz12;

```

```

Xe1 = Xet1 + Xeu1 + Xev1 + Xew1 + Xex1 + Xey1 + Xez1;
Xe2 = Xet2 + Xeu2 + Xev2 + Xew2 + Xex2 + Xey2 + Xez2;
Xe3 = Xet3 + Xeu3 + Xev3 + Xew3 + Xex3 + Xey3 + Xez3;
Xe4 = Xet4 + Xeu4 + Xev4 + Xew4 + Xex4 + Xey4 + Xez4;
Xe5 = Xet5 + Xeu5 + Xev5 + Xew5 + Xex5 + Xey5 + Xez5;
Xe6 = Xet6 + Xeu6 + Xev6 + Xew6 + Xex6 + Xey6 + Xez6;
Xe7 = Xet7 + Xeu7 + Xev7 + Xew7 + Xex7 + Xey7 + Xez7;
Xe8 = Xes8 + Xet8 + Xeu8 + Xev8 + Xew8 + Xex8 + Xey8 + Xez8;
Xe9 = Xes9 + Xet9 + Xeu9 + Xev9 + Xew9 + Xex9 + Xey9 + Xez9;
Xe10 = Xes10 + Xet10 + Xeu10 + Xev10 + Xew10 + Xex10 + Xey10 + Xez10;
Xe11 = Xes11 + Xet11 + Xeu11 + Xev11 + Xew11 + Xex11 + Xey11 + Xez11;
Xe12 = Xes12 + Xet12 + Xeu12 + Xev12 + Xew12 + Xex12 + Xey12 + Xez12;

```

!Kendala Jumlah Produksi;

```

Xa1 + Ia0 - Ia1 = 7920;
Xa2 + Ia1 - Ia2 = 6800;
Xa3 + Ia2 - Ia3 = 2320;
Xa4 + Ia3 - Ia4 = 5680;
Xa5 + Ia4 - Ia5 = 5680;
Xa6 + Ia5 - Ia6 = 4560;
Xa7 + Ia6 - Ia7 = 10160;
Xa8 + Ia7 - Ia8 = 7920;
Xa9 + Ia8 - Ia9 = 6800;
Xa10 + Ia9 - Ia10 = 6800;
Xa11 + Ia10 - Ia11 = 6800;
Xa12 + Ia11 - Ia12 = 7920;

```

```

Xb1 + Ib0 - Ib1 = 10667;
Xb2 + Ib1 - Ib2 = 7667;
Xb3 + Ib2 - Ib3 = 3333;
Xb4 + Ib3 - Ib4 = 4000;
Xb5 + Ib4 - Ib5 = 3667;
Xb6 + Ib5 - Ib6 = 4000;
Xb7 + Ib6 - Ib7 = 6333;
Xb8 + Ib7 - Ib8 = 6333;
Xb9 + Ib8 - Ib9 = 7333;
Xb10 + Ib9 - Ib10 = 6333;
Xb11 + Ib10 - Ib11 = 5333;
Xb12 + Ib11 - Ib12 = 13333;

```

```

Xc1 + Ic0 - Ic1 = 1092697;
Xc2 + Ic1 - Ic2 = 958297;
Xc3 + Ic2 - Ic3 = 451417;
Xc4 + Ic3 - Ic4 = 866137;
Xc5 + Ic4 - Ic5 = 543897;
Xc6 + Ic5 - Ic6 = 825710;
Xc7 + Ic6 - Ic7 = 567540;
Xc8 + Ic7 - Ic8 = 822360;
Xc9 + Ic8 - Ic9 = 824430;
Xc10 + Ic9 - Ic10 = 820980;
Xc11 + Ic10 - Ic11 = 820980;
Xc12 + Ic11 - Ic12 = 822132;

```

```

Xd1 + Id0 - Id1 = 538061;
Xd2 + Id1 - Id2 = 406732;
Xd3 + Id2 - Id3 = 184053;
Xd4 + Id3 - Id4 = 152160;
Xd5 + Id4 - Id5 = 197482;
Xd6 + Id5 - Id6 = 272341;
Xd7 + Id6 - Id7 = 350722;
Xd8 + Id7 - Id8 = 416057;
Xd9 + Id8 - Id9 = 304420;
Xd10 + Id9 - Id10 = 525487;
Xd11 + Id10 - Id11 = 439952;
Xd12 + Id11 - Id12 = 871038;

```

```

Xe1 + Ie0 - Ie1 = 318244;
Xe2 + Ie1 - Ie2 = 336409;
Xe3 + Ie2 - Ie3 = 352366;
Xe4 + Ie3 - Ie4 = 413790;

```



$Xe5 + Ie4 - Ie5 = 274889;$
 $Xe6 + Ie5 - Ie6 = 324107;$
 $Xe7 + Ie6 - Ie7 = 317950;$
 $Xe8 + Ie7 - Ie8 = 571341;$
 $Xe9 + Ie8 - Ie9 = 450606;$
 $Xe10 + Ie9 - Ie10 = 357930;$
 $Xe11 + Ie10 - Ie11 = 514546;$
 $Xe12 + Ie11 - Ie12 = 537196;$

!Kendala Tujuan Jumlah Persediaan;

$Ia1 + dn1 - dp1 = 0;$
 $Ia2 + dn2 - dp2 = 0;$
 $Ia3 + dn3 - dp3 = 0;$
 $Ia4 + dn4 - dp4 = 0;$
 $Ia5 + dn5 - dp5 = 0;$
 $Ia6 + dn6 - dp6 = 0;$
 $Ia7 + dn7 - dp7 = 0;$
 $Ia8 + dn8 - dp8 = 0;$
 $Ia9 + dn9 - dp9 = 0;$
 $Ia10 + dn10 - dp10 = 0;$
 $Ia11 + dn11 - dp11 = 0;$
 $Ia12 + dn12 - dp12 = 0;$

$Ib1 + dn13 - dp13 = 0;$
 $Ib2 + dn14 - dp14 = 0;$
 $Ib3 + dn15 - dp15 = 0;$
 $Ib4 + dn16 - dp16 = 0;$
 $Ib5 + dn17 - dp17 = 0;$
 $Ib6 + dn18 - dp18 = 0;$
 $Ib7 + dn19 - dp19 = 0;$
 $Ib8 + dn20 - dp20 = 0;$
 $Ib9 + dn21 - dp21 = 0;$
 $Ib10 + dn22 - dp22 = 0;$
 $Ib11 + dn23 - dp23 = 0;$
 $Ib12 + dn24 - dp24 = 0;$

$Ic1 + dn25 - dp25 = 0;$
 $Ic2 + dn26 - dp26 = 0;$
 $Ic3 + dn27 - dp27 = 0;$
 $Ic4 + dn28 - dp28 = 0;$
 $Ic5 + dn29 - dp29 = 0;$
 $Ic6 + dn30 - dp30 = 0;$
 $Ic7 + dn31 - dp31 = 0;$
 $Ic8 + dn32 - dp32 = 0;$
 $Ic9 + dn33 - dp33 = 0;$
 $Ic10 + dn34 - dp34 = 0;$
 $Ic11 + dn35 - dp35 = 0;$
 $Ic12 + dn36 - dp36 = 0;$

$Id1 + dn37 - dp37 = 0;$
 $Id2 + dn38 - dp38 = 0;$
 $Id3 + dn39 - dp39 = 0;$
 $Id4 + dn40 - dp40 = 0;$
 $Id5 + dn41 - dp41 = 0;$
 $Id6 + dn42 - dp42 = 0;$
 $Id7 + dn43 - dp43 = 0;$
 $Id8 + dn44 - dp44 = 0;$
 $Id9 + dn45 - dp45 = 0;$
 $Id10 + dn46 - dp46 = 0;$
 $Id11 + dn47 - dp47 = 0;$
 $Id12 + dn48 - dp48 = 0;$

$Ie1 + dn49 - dp49 = 0;$
 $Ie2 + dn50 - dp50 = 0;$
 $Ie3 + dn51 - dp51 = 0;$
 $Ie4 + dn52 - dp52 = 0;$
 $Ie5 + dn53 - dp53 = 0;$
 $Ie6 + dn54 - dp54 = 0;$
 $Ie7 + dn55 - dp55 = 0;$
 $Ie8 + dn56 - dp56 = 0;$
 $Ie9 + dn57 - dp57 = 0;$
 $Ie10 + dn58 - dp58 = 0;$
 $Ie11 + dn59 - dp59 = 0;$
 $Ie12 + dn60 - dp60 = 0;$

!Kendala Tujuan Penggunaan Jam Kerja Mesin;
!Mesin Tdiel;



0.379*Xam1 + 0.236*Xbm1 + dn61 - dp61 = 32411;
 0.379*Xam2 + 0.236*Xbm2 + dn62 - dp62 = 31293;
 0.379*Xam3 + 0.236*Xbm3 + dn63 - dp63 = 33528;
 0.379*Xam4 + 0.236*Xbm4 + dn64 - dp64 = 32411;
 0.379*Xam5 + 0.236*Xbm5 + dn65 - dp65 = 32411;
 0.379*Xam6 + 0.236*Xbm6 + dn66 - dp66 = 32411;
 0.379*Xam7 + 0.236*Xbm7 + dn67 - dp67 = 26823;
 0.379*Xam8 + 0.236*Xbm8 + dn68 - dp68 = 34646;
 0.379*Xam9 + 0.236*Xbm9 + dn69 - dp69 = 32411;
 0.379*Xam10 + 0.236*Xbm10 + dn70 - dp70 = 34646;
 0.379*Xam11 + 0.236*Xbm11 + dn71 - dp71 = 33528;
 0.379*Xam12 + 0.236*Xbm12 + dn72 - dp72 = 34646;

!Mesin Tdie2;

0.379*Xan1 + 0.236*Xbn1 + dn73 - dp73 = 27952;
 0.379*Xan2 + 0.236*Xbn2 + dn74 - dp74 = 24225;
 0.379*Xan3 + 0.236*Xbn3 + dn75 - dp75 = 26089;
 0.379*Xan4 + 0.236*Xbn4 + dn76 - dp76 = 27021;
 0.379*Xan5 + 0.236*Xbn5 + dn77 - dp77 = 24225;
 0.379*Xan6 + 0.236*Xbn6 + dn78 - dp78 = 25157;
 0.379*Xan7 + 0.236*Xbn7 + dn79 - dp79 = 22362;
 0.379*Xan8 + 0.236*Xbn8 + dn80 - dp80 = 28884;
 0.379*Xan9 + 0.236*Xbn9 + dn81 - dp81 = 25157;
 0.379*Xan10 + 0.236*Xbn10 + dn82 - dp82 = 26089;
 0.379*Xan11 + 0.236*Xbn11 + dn83 - dp83 = 25157;
 0.379*Xan12 + 0.236*Xbn12 + dn84 - dp84 = 25157;

!Mesin Tdie3;

0.379*Xao1 + 0.236*Xbo1 + dn85 - dp85 = 29248;
 0.379*Xao2 + 0.236*Xbo2 + dn86 - dp86 = 27159;
 0.379*Xao3 + 0.236*Xbo3 + dn87 - dp87 = 31337;
 0.379*Xao4 + 0.236*Xbo4 + dn88 - dp88 = 30293;
 0.379*Xao5 + 0.236*Xbo5 + dn89 - dp89 = 30293;
 0.379*Xao6 + 0.236*Xbo6 + dn90 - dp90 = 30293;
 0.379*Xao7 + 0.236*Xbo7 + dn91 - dp91 = 25070;
 0.379*Xao8 + 0.236*Xbo8 + dn92 - dp92 = 32382;
 0.379*Xao9 + 0.236*Xbo9 + dn93 - dp93 = 26114;
 0.379*Xao10 + 0.236*Xbo10 + dn94 - dp94 = 28204;
 0.379*Xao11 + 0.236*Xbo11 + dn95 - dp95 = 26114;
 0.379*Xao12 + 0.236*Xbo12 + dn96 - dp96 = 26114;

!Mesin Tdie4;

0.096*Xcp1 + dn97 - dp97 = 36961;
 0.096*Xcp2 + dn98 - dp98 = 35686;
 0.096*Xcp3 + dn99 - dp99 = 38235;
 0.096*Xcp4 + dn100 - dp100 = 36961;
 0.096*Xcp5 + dn101 - dp101 = 36961;
 0.096*Xcp6 + dn102 - dp102 = 36961;
 0.096*Xcp7 + dn103 - dp103 = 30588;
 0.096*Xcp8 + dn104 - dp104 = 39510;
 0.096*Xcp9 + dn105 - dp105 = 36961;
 0.096*Xcp10 + dn106 - dp106 = 39510;
 0.096*Xcp11 + dn107 - dp107 = 36961;
 0.096*Xcp12 + dn108 - dp108 = 39510;

!Mesin Tdie5;

0.096*Xcq1 + dn109 - dp109 = 35375;
 0.096*Xcq2 + dn110 - dp110 = 33016;
 0.096*Xcq3 + dn111 - dp111 = 35375;
 0.096*Xcq4 + dn112 - dp112 = 34196;
 0.096*Xcq5 + dn113 - dp113 = 34196;
 0.096*Xcq6 + dn114 - dp114 = 34196;
 0.096*Xcq7 + dn115 - dp115 = 28300;
 0.096*Xcq8 + dn116 - dp116 = 36554;
 0.096*Xcq9 + dn117 - dp117 = 34196;
 0.096*Xcq10 + dn118 - dp118 = 36554;
 0.096*Xcq11 + dn119 - dp119 = 34196;
 0.096*Xcq12 + dn120 - dp120 = 36554;

!Mesin Tdie6;

0.379*Xar1 + 0.236*Xbr1 + dn121 - dp121 = 30369;
 0.379*Xar2 + 0.236*Xbr2 + dn122 - dp122 = 29322;
 0.379*Xar3 + 0.236*Xbr3 + dn123 - dp123 = 31416;
 0.379*Xar4 + 0.236*Xbr4 + dn124 - dp124 = 30369;
 0.379*Xar5 + 0.236*Xbr5 + dn125 - dp125 = 30369;
 0.379*Xar6 + 0.236*Xbr6 + dn126 - dp126 = 30369;
 0.379*Xar7 + 0.236*Xbr7 + dn127 - dp127 = 25133;

0.379*Xar8 + 0.236*Xbr8 + dn128 - dp128 = 32463;
 0.379*Xar9 + 0.236*Xbr9 + dn129 - dp129 = 29322;
 0.379*Xar10 + 0.236*Xbr10 + dn130 - dp130 = 30369;
 0.379*Xar11 + 0.236*Xbr11 + dn131 - dp131 = 28275;
 0.379*Xar12 + 0.236*Xbr12 + dn132 - dp132 = 29322;

!Mesin Extrusion1;

0.096*Xds8 + 0.090*Xes8 + dn133 - dp133 = 32577;
 0.096*Xds9 + 0.090*Xes9 + dn134 - dp134 = 31526;
 0.096*Xds10 + 0.090*Xes10 + dn135 - dp135 = 32577;
 0.096*Xds11 + 0.090*Xes11 + dn136 - dp136 = 31526;
 0.096*Xds12 + 0.090*Xes12 + dn137 - dp137 = 32577;

!Mesin Extrusion2;

0.096*Xdt1 + 0.090*Xet1 + dn138 - dp138 = 32828;
 0.096*Xdt2 + 0.090*Xet2 + dn139 - dp139 = 31696;
 0.096*Xdt3 + 0.090*Xet3 + dn140 - dp140 = 35092;
 0.096*Xdt4 + 0.090*Xet4 + dn141 - dp141 = 32828;
 0.096*Xdt5 + 0.090*Xet5 + dn142 - dp142 = 32828;
 0.096*Xdt6 + 0.090*Xet6 + dn143 - dp143 = 32828;
 0.096*Xdt7 + 0.090*Xet7 + dn144 - dp144 = 27168;
 0.096*Xdt8 + 0.090*Xet8 + dn145 - dp145 = 35092;
 0.096*Xdt9 + 0.090*Xet9 + dn146 - dp146 = 33960;
 0.096*Xdt10 + 0.090*Xet10 + dn147 - dp147 = 35092;
 0.096*Xdt11 + 0.090*Xet11 + dn148 - dp148 = 33960;
 0.096*Xdt12 + 0.090*Xet12 + dn149 - dp149 = 35092;

!Mesin Extrusion3;

0.096*Xdu1 + 0.090*Xeu1 + dn150 - dp150 = 32704;
 0.096*Xdu2 + 0.090*Xeu2 + dn151 - dp151 = 31576;
 0.096*Xdu3 + 0.090*Xeu3 + dn152 - dp152 = 34959;
 0.096*Xdu4 + 0.090*Xeu4 + dn153 - dp153 = 32704;
 0.096*Xdu5 + 0.090*Xeu5 + dn154 - dp154 = 32704;
 0.096*Xdu6 + 0.090*Xeu6 + dn155 - dp155 = 32704;
 0.096*Xdu7 + 0.090*Xeu7 + dn156 - dp156 = 27065;
 0.096*Xdu8 + 0.090*Xeu8 + dn157 - dp157 = 34959;
 0.096*Xdu9 + 0.090*Xeu9 + dn158 - dp158 = 33832;
 0.096*Xdu10 + 0.090*Xeu10 + dn159 - dp159 = 34959;
 0.096*Xdu11 + 0.090*Xeu11 + dn160 - dp160 = 33832;
 0.096*Xdu12 + 0.090*Xeu12 + dn161 - dp161 = 34959;

!Mesin Extrusion4;

0.096*Xdv1 + 0.090*Xev1 + dn162 - dp162 = 31462;
 0.096*Xdv2 + 0.090*Xev2 + dn163 - dp163 = 30377;
 0.096*Xdv3 + 0.090*Xev3 + dn164 - dp164 = 33632;
 0.096*Xdv4 + 0.090*Xev4 + dn165 - dp165 = 31462;
 0.096*Xdv5 + 0.090*Xev5 + dn166 - dp166 = 31462;
 0.096*Xdv6 + 0.090*Xev6 + dn167 - dp167 = 31462;
 0.096*Xdv7 + 0.090*Xev7 + dn168 - dp168 = 26038;
 0.096*Xdv8 + 0.090*Xev8 + dn169 - dp169 = 33632;
 0.096*Xdv9 + 0.090*Xev9 + dn170 - dp170 = 32574;
 0.096*Xdv10 + 0.090*Xev10 + dn171 - dp171 = 33632;
 0.096*Xdv11 + 0.090*Xev11 + dn172 - dp172 = 32574;
 0.096*Xdv12 + 0.090*Xev12 + dn173 - dp173 = 33632;

!Mesin Extrusion5;

0.096*Xdw1 + 0.090*Xew1 + dn174 - dp174 = 33452;
 0.096*Xdw2 + 0.090*Xew2 + dn175 - dp175 = 32298;
 0.096*Xdw3 + 0.090*Xew3 + dn176 - dp176 = 35759;
 0.096*Xdw4 + 0.090*Xew4 + dn177 - dp177 = 33452;
 0.096*Xdw5 + 0.090*Xew5 + dn178 - dp178 = 33452;
 0.096*Xdw6 + 0.090*Xew6 + dn179 - dp179 = 33452;
 0.096*Xdw7 + 0.090*Xew7 + dn180 - dp180 = 27684;
 0.096*Xdw8 + 0.090*Xew8 + dn181 - dp181 = 35759;
 0.096*Xdw9 + 0.090*Xew9 + dn182 - dp182 = 34605;
 0.096*Xdw10 + 0.090*Xew10 + dn183 - dp183 = 35759;
 0.096*Xdw11 + 0.090*Xew11 + dn184 - dp184 = 34605;
 0.096*Xdw12 + 0.090*Xew12 + dn185 - dp185 = 35759;

!Mesin Extrusion6;

0.096*Xdx1 + 0.090*Xex1 + dn186 - dp186 = 25925;
 0.096*Xdx2 + 0.090*Xex2 + dn187 - dp187 = 25031;
 0.096*Xdx3 + 0.090*Xex3 + dn188 - dp188 = 27936;
 0.096*Xdx5 + 0.090*Xex5 + dn189 - dp189 = 25925;
 0.096*Xdx8 + 0.090*Xex8 + dn190 - dp190 = 27713;
 0.096*Xdx9 + 0.090*Xex9 + dn191 - dp191 = 26819;
 0.096*Xdx10 + 0.090*Xex10 + dn192 - dp192 = 27713;
 0.096*Xdx11 + 0.090*Xex11 + dn193 - dp193 = 26819;

$$0.096 * Xdx12 + 0.090 * Xex12 + dn194 - dp194 = 27713;$$

!Mesin Extrusion7;

$$\begin{aligned} 0.096 * Xdy1 + 0.090 * Xey1 + dn195 - dp195 &= 30555; \\ 0.096 * Xdy2 + 0.090 * Xey2 + dn196 - dp196 &= 29501; \\ 0.096 * Xdy3 + 0.090 * Xey3 + dn197 - dp197 &= 32662; \\ 0.096 * Xdy4 + 0.090 * Xey4 + dn198 - dp198 &= 30555; \\ 0.096 * Xdy5 + 0.090 * Xey5 + dn199 - dp199 &= 30555; \\ 0.096 * Xdy6 + 0.090 * Xey6 + dn200 - dp200 &= 30555; \\ 0.096 * Xdy7 + 0.090 * Xey7 + dn201 - dp201 &= 25287; \\ 0.096 * Xdy8 + 0.090 * Xey8 + dn202 - dp202 &= 32662; \\ 0.096 * Xdy9 + 0.090 * Xey9 + dn203 - dp203 &= 31609; \\ 0.096 * Xdy10 + 0.090 * Xey10 + dn204 - dp204 &= 32662; \\ 0.096 * Xdy11 + 0.090 * Xey11 + dn205 - dp205 &= 31609; \\ 0.096 * Xdy12 + 0.090 * Xey12 + dn206 - dp206 &= 32662; \end{aligned}$$

!Mesin Extrusion8;

$$\begin{aligned} 0.096 * Xdz1 + 0.090 * Xez1 + dn207 - dp207 &= 31042; \\ 0.096 * Xdz2 + 0.090 * Xez2 + dn208 - dp208 &= 29972; \\ 0.096 * Xdz3 + 0.090 * Xez3 + dn209 - dp209 &= 33183; \\ 0.096 * Xdz4 + 0.090 * Xez4 + dn210 - dp210 &= 31042; \\ 0.096 * Xdz5 + 0.090 * Xez5 + dn211 - dp211 &= 31042; \\ 0.096 * Xdz6 + 0.090 * Xez6 + dn212 - dp212 &= 31042; \\ 0.096 * Xdz7 + 0.090 * Xez7 + dn213 - dp213 &= 25690; \\ 0.096 * Xdz8 + 0.090 * Xez8 + dn214 - dp214 &= 33183; \\ 0.096 * Xdz9 + 0.090 * Xez9 + dn215 - dp215 &= 32113; \\ 0.096 * Xdz10 + 0.090 * Xez10 + dn216 - dp216 &= 33183; \\ 0.096 * Xdz11 + 0.090 * Xez11 + dn217 - dp217 &= 32113; \\ 0.096 * Xdz12 + 0.090 * Xez12 + dn218 - dp218 &= 33183; \end{aligned}$$

!Kendala Tujuan Biaya Produksi;

$$\begin{aligned} 0.644 * Xa1 + 0.541 * Xb1 + 0.207 * Xc1 + 0.053 * Xd1 + 0.042 * Xe1 + dn219 - dp219 &= 278487; \\ 0.644 * Xa2 + 0.541 * Xb2 + 0.207 * Xc2 + 0.053 * Xd2 + 0.042 * Xe2 + dn220 - dp220 &= 242176; \\ 0.644 * Xa3 + 0.541 * Xb3 + 0.207 * Xc3 + 0.053 * Xd3 + 0.042 * Xe3 + dn221 - dp221 &= 121083; \\ 0.644 * Xa4 + 0.541 * Xb4 + 0.207 * Xc4 + 0.053 * Xd4 + 0.042 * Xe4 + dn222 - dp222 &= 210182; \\ 0.644 * Xa5 + 0.541 * Xb5 + 0.207 * Xc5 + 0.053 * Xd5 + 0.042 * Xe5 + dn223 - dp223 &= 140002; \\ 0.644 * Xa6 + 0.541 * Xb6 + 0.207 * Xc6 + 0.053 * Xd6 + 0.042 * Xe6 + dn224 - dp224 &= 203719; \\ 0.644 * Xa7 + 0.541 * Xb7 + 0.207 * Xc7 + 0.053 * Xd7 + 0.042 * Xe7 + dn225 - dp225 &= 159137; \\ 0.644 * Xa8 + 0.541 * Xb8 + 0.207 * Xc8 + 0.053 * Xd8 + 0.042 * Xe8 + dn226 - dp226 &= 224422; \\ 0.644 * Xa9 + 0.541 * Xb9 + 0.207 * Xc9 + 0.053 * Xd9 + 0.042 * Xe9 + dn227 - dp227 &= 213698; \\ 0.644 * Xa10 + 0.541 * Xb10 + 0.207 * Xc10 + 0.053 * Xd10 + 0.042 * Xe10 + dn228 - dp228 &= 220275; \\ 0.644 * Xa11 + 0.541 * Xb11 + 0.207 * Xc11 + 0.053 * Xd11 + 0.042 * Xe11 + dn229 - dp229 &= 221762; \\ 0.644 * Xa12 + 0.541 * Xb12 + 0.207 * Xc12 + 0.053 * Xd12 + 0.042 * Xe12 + dn230 - dp230 &= 250837; \end{aligned}$$

!Kendala Biaya Simpan;

$$\begin{aligned} ICa1 &= 0.00406 * Ia1; \\ ICa2 &= 0.00406 * Ia2; \\ ICa3 &= 0.00406 * Ia3; \\ ICa4 &= 0.00406 * Ia4; \\ ICa5 &= 0.00406 * Ia5; \\ ICa6 &= 0.00406 * Ia6; \\ ICa7 &= 0.00406 * Ia7; \\ ICa8 &= 0.00406 * Ia8; \\ ICa9 &= 0.00406 * Ia9; \\ ICa10 &= 0.00406 * Ia10; \\ ICa11 &= 0.00406 * Ia11; \\ ICa12 &= 0.00406 * Ia12; \end{aligned}$$

$$\begin{aligned} Icb1 &= 0.00341 * Ib1; \\ Icb2 &= 0.00341 * Ib2; \\ Icb3 &= 0.00341 * Ib3; \\ Icb4 &= 0.00341 * Ib4; \\ Icb5 &= 0.00341 * Ib5; \\ Icb6 &= 0.00341 * Ib6; \\ Icb7 &= 0.00341 * Ib7; \\ Icb8 &= 0.00341 * Ib8; \\ Icb9 &= 0.00341 * Ib9; \\ Icb10 &= 0.00341 * Ib10; \\ Icb11 &= 0.00341 * Ib11; \\ Icb12 &= 0.00341 * Ib12; \end{aligned}$$

$$\begin{aligned} ICc1 &= 0.00130 * Ic1; \\ ICc2 &= 0.00130 * Ic2; \\ ICc3 &= 0.00130 * Ic3; \\ ICc4 &= 0.00130 * Ic4; \\ ICc5 &= 0.00130 * Ic5; \\ ICc6 &= 0.00130 * Ic6; \\ ICc7 &= 0.00130 * Ic7; \end{aligned}$$

```
ICc8 = 0.00130*IC8;
ICc9 = 0.00130*IC9;
ICc10= 0.00130*IC10;
ICc11= 0.00130*IC11;
ICc12= 0.00130*IC12;
```

```
ICd1 = 0.00033*Id1;
ICd2 = 0.00033*Id2;
ICd3 = 0.00033*Id3;
ICd4 = 0.00033*Id4;
ICd5 = 0.00033*Id5;
ICd6 = 0.00033*Id6;
ICd7 = 0.00033*Id7;
ICd8 = 0.00033*Id8;
ICd9 = 0.00033*Id9;
ICd10= 0.00033*Id10;
ICd11= 0.00033*Id11;
ICd12= 0.00033*Id12;
```

```
ICe1 = 0.00026*Ie1;
ICe2 = 0.00026*Ie2;
ICe3 = 0.00026*Ie3;
ICe4 = 0.00026*Ie4;
ICe5 = 0.00026*Ie5;
ICe6 = 0.00026*Ie6;
ICe7 = 0.00026*Ie7;
ICe8 = 0.00026*Ie8;
ICe9 = 0.00026*Ie9;
ICe10= 0.00026*Ie10;
ICe11= 0.00026*Ie11;
ICe12= 0.00026*Ie12;
```

```
TC = ((ICa1 + ICa2 + ICa3 + ICa4 + ICa5 + ICa6 + ICa7 + ICa8 + ICa9 + ICa10 + ICa11 +
ICa12) + (ICb1 + ICb2 + ICb3 + ICb4 + ICb5 + ICb6 + ICb7 + ICb8 + ICb9 + ICb10 + ICb11 +
ICb12) + (ICc1 + ICc2 + ICc3 + ICc4 + ICc5 + ICc6 + ICc7 + ICc8 + ICc9 + ICc10 + ICc11 +
ICc12) + (ICd1 + ICd2 + ICd3 + ICd4 + ICd5 + ICd6 + ICd7 + ICd8 + ICd9 + ICd10 + ICd11 +
ICd12) + (ICe1 + ICe2 + ICe3 + ICe4 + ICe5 + ICe6 + ICe7 + ICe8 + ICe9 + ICe10 + ICe11 +
ICe12)) + ((0.644*Xa1 + 0.644*Xa2 + 0.644*Xa3 + 0.644*Xa4 + 0.644*Xa5 + 0.644*Xa6 +
0.644*Xa7 + 0.644*Xa8 + 0.644*Xa9 + 0.644*Xa10 + 0.644*Xa11 + 0.644*Xa12) +
(0.541*Xb1 + 0.541*Xb2 + 0.541*Xb3 + 0.541*Xb4 + 0.541*Xb5 + 0.541*Xb6 +
0.541*Xb7 + 0.541*Xb8 + 0.541*Xb9 + 0.541*Xb10 + 0.541*Xb11 + 0.541*Xb12) +
(0.207*Xc1 + 0.207*Xc2 + 0.207*Xc3 + 0.207*Xc4 + 0.207*Xc5 + 0.207*Xc6 +
0.207*Xc7 + 0.207*Xc8 + 0.207*Xc9 + 0.207*Xc10 + 0.207*Xc11 + 0.207*Xc12) +
(0.053*Xd1 + 0.053*Xd2 + 0.053*Xd3 + 0.053*Xd4 + 0.053*Xd5 + 0.053*Xd6 +
0.053*Xd7 + 0.053*Xd8 + 0.053*Xd9 + 0.053*Xd10 + 0.053*Xd11 + 0.053*Xd12) +
(0.042*Xe1 + 0.042*Xe2 + 0.042*Xe3 + 0.042*Xe4 + 0.042*Xe5 + 0.042*Xe6 +
0.042*Xe7 + 0.042*Xe8 + 0.042*Xe9 + 0.042*Xe10 + 0.042*Xe11 + 0.042*Xe12));
```

```
!Kendala nonnegativitas;
```

```
Xa1>=0; Xa2>=0; Xa3>=0; Xa4>=0; Xa5>=0; Xa6>=0; Xa7>=0; Xa8>=0; Xa9>=0; Xa10>=0; Xa11>=0;
Xa12>=0;
Xb1>=0; Xb2>=0; Xb3>=0; Xb4>=0; Xb5>=0; Xb6>=0; Xb7>=0; Xb8>=0; Xb9>=0; Xb10>=0; Xb11>=0;
Xb12>=0;
Xc1>=0; Xc2>=0; Xc3>=0; Xc4>=0; Xc5>=0; Xc6>=0; Xc7>=0; Xc8>=0; Xc9>=0; Xc10>=0; Xc11>=0;
Xc12>=0;
Xd1>=0; Xd2>=0; Xd3>=0; Xd4>=0; Xd5>=0; Xd6>=0; Xd7>=0; Xd8>=0; Xd9>=0; Xd10>=0; Xd11>=0;
Xd12>=0;
Xe1>=0; Xe2>=0; Xe3>=0; Xe4>=0; Xe5>=0; Xe6>=0; Xe7>=0; Xe8>=0; Xe9>=0; Xe10>=0; Xe11>=0;
Xe12>=0;
```

```
Ia1>=0; Ia2>=0; Ia3>=0; Ia4>=0; Ia5>=0; Ia6>=0; Ia7>=0; Ia8>=0; Ia9>=0; Ia10>=0; Ia11>=0;
Ia12>=0;
Ib1>=0; Ib2>=0; Ib3>=0; Ib4>=0; Ib5>=0; Ib6>=0; Ib7>=0; Ib8>=0; Ib9>=0; Ib10>=0; Ib11>=0;
Ib12>=0;
Ic1>=0; Ic2>=0; Ic3>=0; Ic4>=0; Ic5>=0; Ic6>=0; Ic7>=0; Ic8>=0; Ic9>=0; Ic10>=0; Ic11>=0;
Ic12>=0;
Id1>=0; Id2>=0; Id3>=0; Id4>=0; Id5>=0; Id6>=0; Id7>=0; Id8>=0; Id9>=0; Id10>=0; Id11>=0;
Id12>=0;
Ie1>=0; Ie2>=0; Ie3>=0; Ie4>=0; Ie5>=0; Ie6>=0; Ie7>=0; Ie8>=0; Ie9>=0; Ie10>=0; Ie11>=0;
Ie12>=0;
```

```
dn1>=0; dn2>=0; dn3>=0; dn4>=0; dn5>=0; dn6>=0; dn7>=0; dn8>=0; dn9>=0;
dn10>=0; dn11>=0; dn12>=0; dn13>=0; dn14>=0; dn15>=0; dn16>=0; dn17>=0; dn18>=0;
dn19>=0; dn20>=0; dn21>=0; dn22>=0; dn23>=0; dn24>=0; dn25>=0; dn26>=0; dn27>=0;
dn28>=0; dn29>=0; dn30>=0; dn31>=0; dn32>=0; dn33>=0; dn34>=0; dn35>=0; dn36>=0;
dn37>=0; dn38>=0; dn39>=0; dn40>=0; dn41>=0; dn42>=0; dn43>=0; dn44>=0; dn45>=0;
dn46>=0; dn47>=0; dn48>=0; dn49>=0; dn50>=0; dn51>=0; dn52>=0; dn53>=0; dn54>=0;
```

dp1>=0; dp2>=0; dp3>=0; dp4>=0; dp5>=0; dp6>=0; dp7>=0; dp8>=0; dp9>=0;
dp10>=0; dp11>=0; dp12>=0; dp13>=0; dp14>=0; dp15>=0; dp16>=0; dp17>=0; dp18>=0;
dp19>=0; dp20>=0; dp21>=0; dp22>=0; dp23>=0; dp24>=0; dp25>=0; dp26>=0; dp27>=0;
dp28>=0; dp29>=0; dp30>=0; dp31>=0; dp32>=0; dp33>=0; dp34>=0; dp35>=0; dp36>=0;
dp37>=0; dp38>=0; dp39>=0; dp40>=0; dp41>=0; dp42>=0; dp43>=0; dp44>=0; dp45>=0;
dp46>=0; dp47>=0; dp48>=0; dp49>=0; dp50>=0; dp51>=0; dp52>=0; dp53>=0; dp54>=0;
dp55>=0; dp56>=0; dp57>=0; dp58>=0; dp59>=0; dp60>=0; dp61>=0; dp62>=0; dp63>=0;
dp64>=0; dp65>=0; dp66>=0; dp67>=0; dp68>=0; dp69>=0; dp70>=0; dp71>=0; dp72>=0;
dp73>=0; dp74>=0; dp75>=0; dp76>=0; dp77>=0; dp78>=0; dp79>=0; dp80>=0; dp81>=0;
dp82>=0; dp83>=0; dp84>=0; dp85>=0; dp86>=0; dp87>=0; dp88>=0; dp89>=0; dp90>=0;
dp91>=0; dp92>=0; dp93>=0; dp94>=0; dp95>=0; dp96>=0; dp97>=0; dp98>=0; dp99>=0;
dp100>=0; dp101>=0; dp102>=0; dp103>=0; dp104>=0; dp105>=0; dp106>=0; dp107>=0; dp108>=0;
dp109>=0; dp110>=0; dp111>=0; dp112>=0; dp113>=0; dp114>=0; dp115>=0; dp116>=0; dp117>=0;
dp118>=0; dp119>=0; dp120>=0; dp121>=0; dp122>=0; dp123>=0; dp124>=0; dp125>=0; dp126>=0;
dp127>=0; dp128>=0; dp129>=0; dp130>=0; dp131>=0; dp132>=0; dp133>=0; dp134>=0; dp135>=0;
dp136>=0; dp137>=0; dp138>=0; dp139>=0; dp140>=0; dp141>=0; dp142>=0; dp143>=0; dp144>=0;
dp145>=0; dp146>=0; dp147>=0; dp148>=0; dp149>=0; dp150>=0; dp151>=0; dp152>=0; dp153>=0;
dp154>=0; dp155>=0; dp156>=0; dp157>=0; dp158>=0; dp159>=0; dp160>=0; dp161>=0; dp162>=0;
dp163>=0; dp164>=0; dp165>=0; dp166>=0; dp167>=0; dp168>=0; dp169>=0; dp170>=0; dp171>=0;
dp172>=0; dp173>=0; dp174>=0; dp175>=0; dp176>=0; dp177>=0; dp178>=0; dp179>=0; dp180>=0;
dp181>=0; dp182>=0; dp183>=0; dp184>=0; dp185>=0; dp186>=0; dp187>=0; dp188>=0; dp189>=0;
dp190>=0; dp191>=0; dp192>=0; dp193>=0; dp194>=0; dp195>=0; dp196>=0; dp197>=0; dp198>=0;
dp199>=0; dp200>=0; dp201>=0; dp202>=0; dp203>=0; dp204>=0; dp205>=0; dp206>=0; dp207>=0;
dp208>=0; dp209>=0; dp210>=0; dp211>=0; dp212>=0; dp213>=0; dp214>=0; dp215>=0; dp216>=0;
dp217>=0; dp218>=0; dp219>=0; dp220>=0; dp221>=0; dp222>=0; dp223>=0; dp224>=0; dp225>=0;
dp226>=0; dp227>=0; dp228>=0; dp229>=0; dp230>=0;

END



LAMPIRAN 10. Output LINGO Model Goal Programming

Global optimal solution found.

Objective value:

61892.09

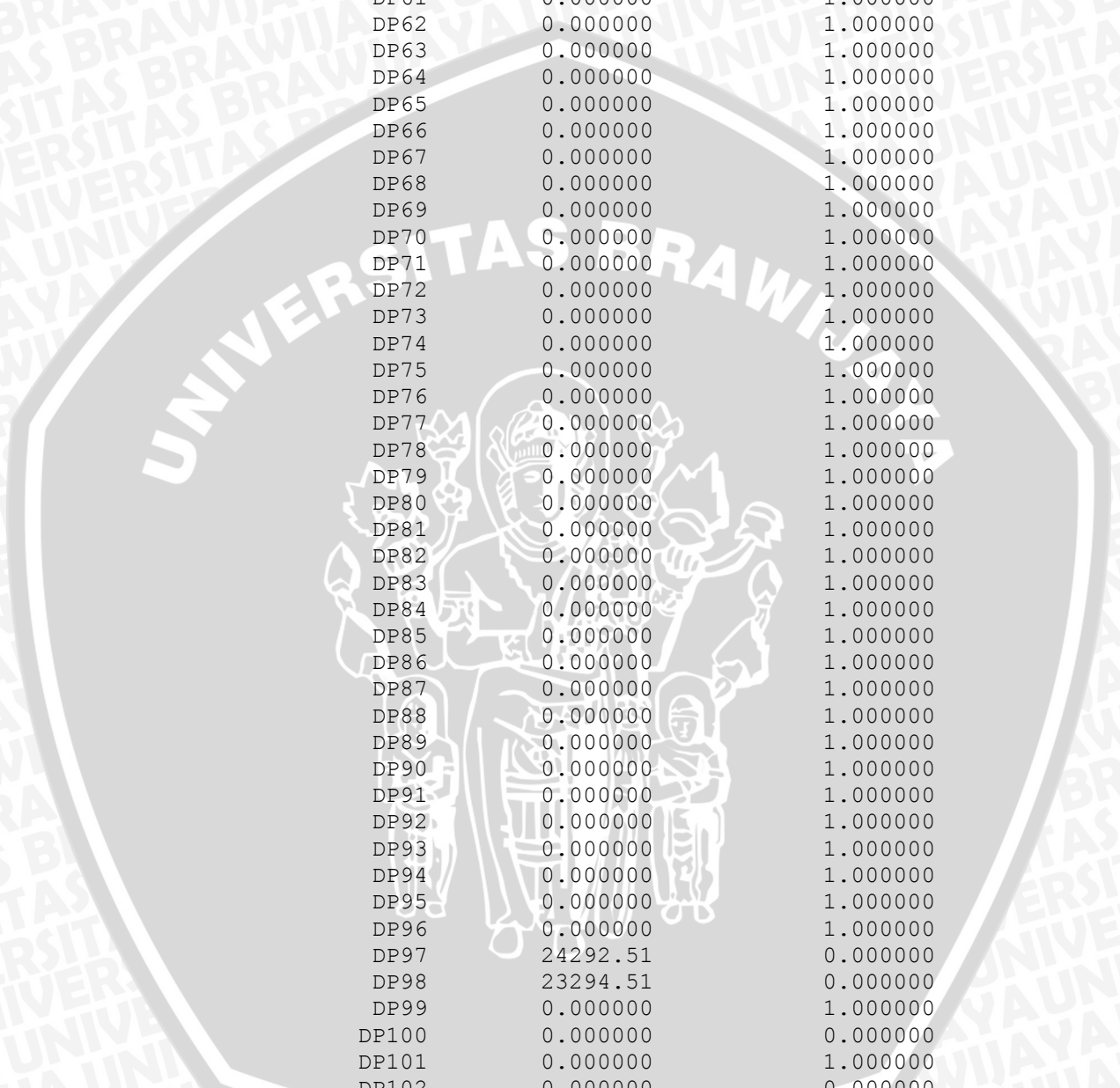
Infeasibilities:

0.000000

Total solver iterations:

340

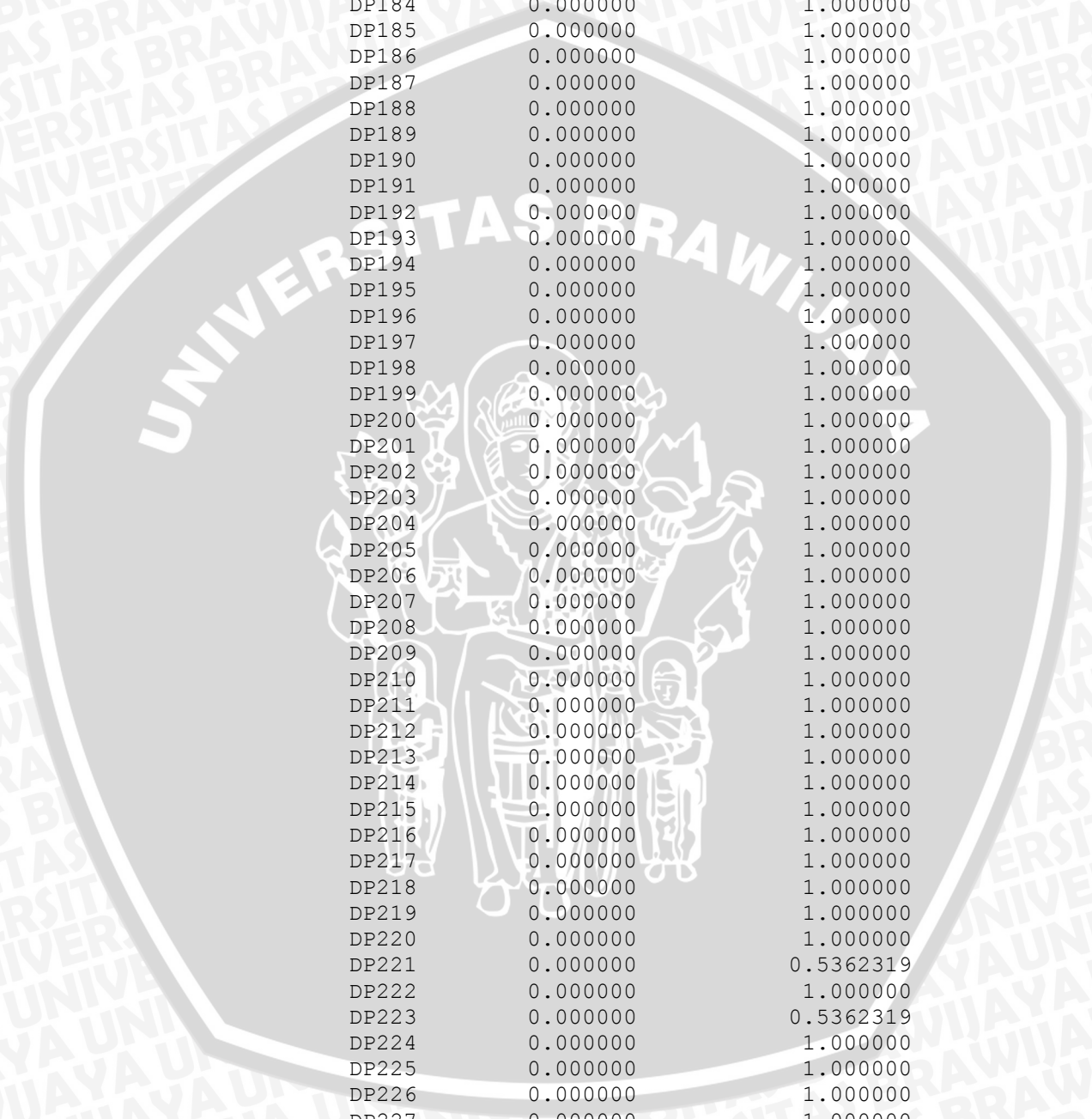
Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN16	0.000000	1.000000
DN17	0.000000	1.000000
DN18	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DN22	0.000000	1.000000
DN23	0.000000	1.000000
DN24	0.000000	1.000000
DN25	0.000000	1.000000
DN26	0.000000	1.000000
DN27	0.000000	1.000000
DN28	0.000000	1.000000
DN29	0.000000	1.000000
DN30	0.000000	1.000000
DN31	0.000000	1.000000
DN32	0.000000	1.000000
DN33	0.000000	1.000000
DN34	0.000000	1.000000
DN35	0.000000	1.000000
DN36	0.000000	1.000000
DN37	0.000000	1.000000
DN38	0.000000	1.000000
DN39	0.000000	1.000000
DN40	0.000000	1.000000
DN41	0.000000	1.000000
DN42	0.000000	1.000000
DN43	0.000000	1.000000
DN44	0.000000	1.000000
DN45	0.000000	1.000000
DN46	0.000000	1.000000
DN47	0.000000	1.000000
DN48	0.000000	1.000000
DN49	0.000000	1.000000
DN50	0.000000	1.000000
DN51	0.000000	1.000000
DN52	0.000000	1.000000



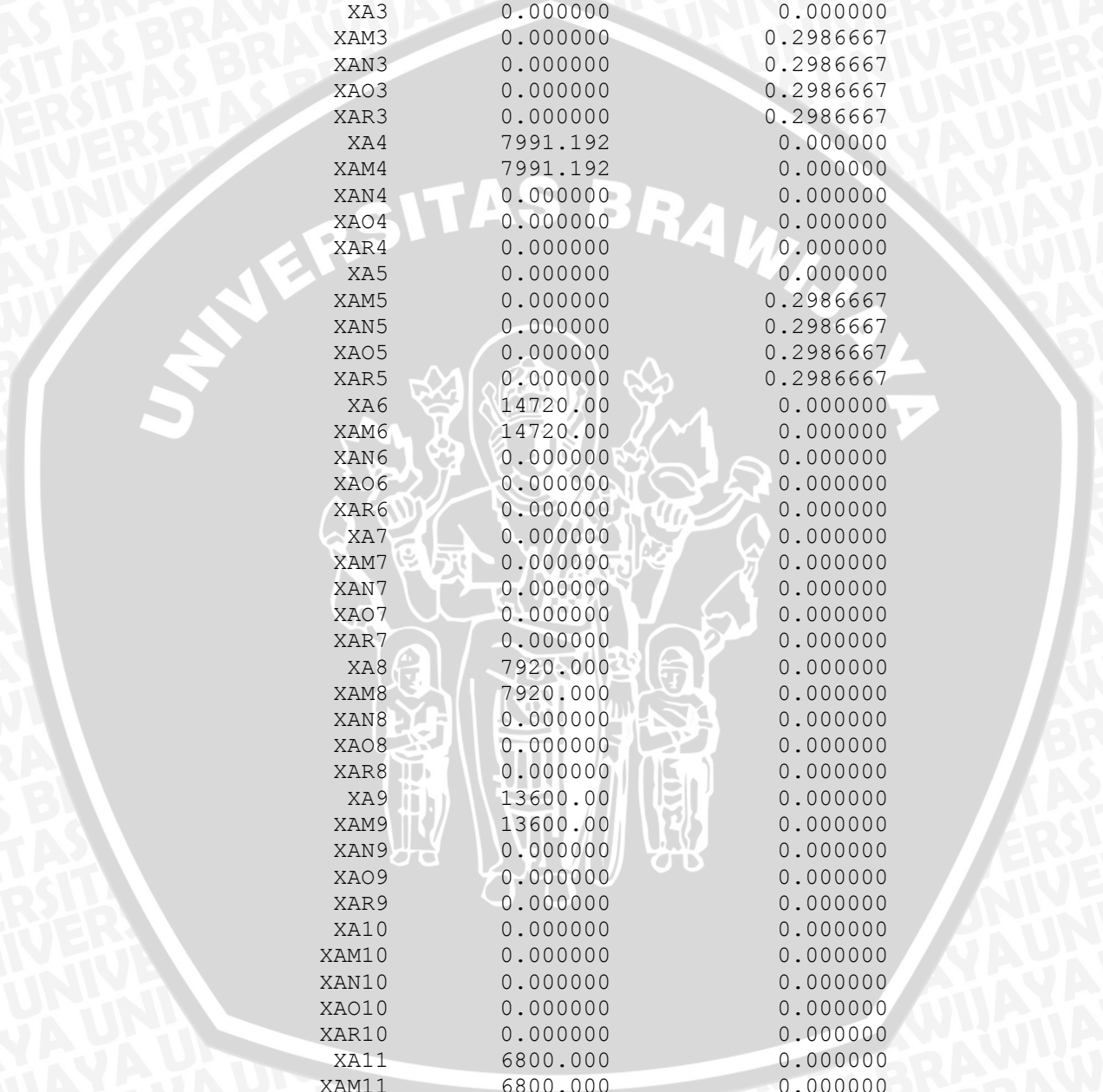
DN53	0.000000	1.000000
DN54	0.000000	1.000000
DN55	0.000000	1.000000
DN56	0.000000	1.000000
DN57	0.000000	1.000000
DN58	0.000000	1.000000
DN59	0.000000	1.000000
DN60	0.000000	1.000000
DP61	0.000000	1.000000
DP62	0.000000	1.000000
DP63	0.000000	1.000000
DP64	0.000000	1.000000
DP65	0.000000	1.000000
DP66	0.000000	1.000000
DP67	0.000000	1.000000
DP68	0.000000	1.000000
DP69	0.000000	1.000000
DP70	0.000000	1.000000
DP71	0.000000	1.000000
DP72	0.000000	1.000000
DP73	0.000000	1.000000
DP74	0.000000	1.000000
DP75	0.000000	1.000000
DP76	0.000000	1.000000
DP77	0.000000	1.000000
DP78	0.000000	1.000000
DP79	0.000000	1.000000
DP80	0.000000	1.000000
DP81	0.000000	1.000000
DP82	0.000000	1.000000
DP83	0.000000	1.000000
DP84	0.000000	1.000000
DP85	0.000000	1.000000
DP86	0.000000	1.000000
DP87	0.000000	1.000000
DP88	0.000000	1.000000
DP89	0.000000	1.000000
DP90	0.000000	1.000000
DP91	0.000000	1.000000
DP92	0.000000	1.000000
DP93	0.000000	1.000000
DP94	0.000000	1.000000
DP95	0.000000	1.000000
DP96	0.000000	1.000000
DP97	24292.51	0.000000
DP98	23294.51	0.000000
DP99	0.000000	1.000000
DP100	0.000000	0.000000
DP101	0.000000	1.000000
DP102	0.000000	0.000000
DP103	0.000000	0.000000
DP104	0.000000	0.000000
DP105	5368.692	0.000000
DP106	0.000000	0.000000
DP107	8936.377	0.000000
DP108	0.000000	0.000000
DP109	0.000000	0.000000
DP110	0.000000	0.000000
DP111	0.000000	1.000000
DP112	0.000000	0.000000
DP113	0.000000	1.000000



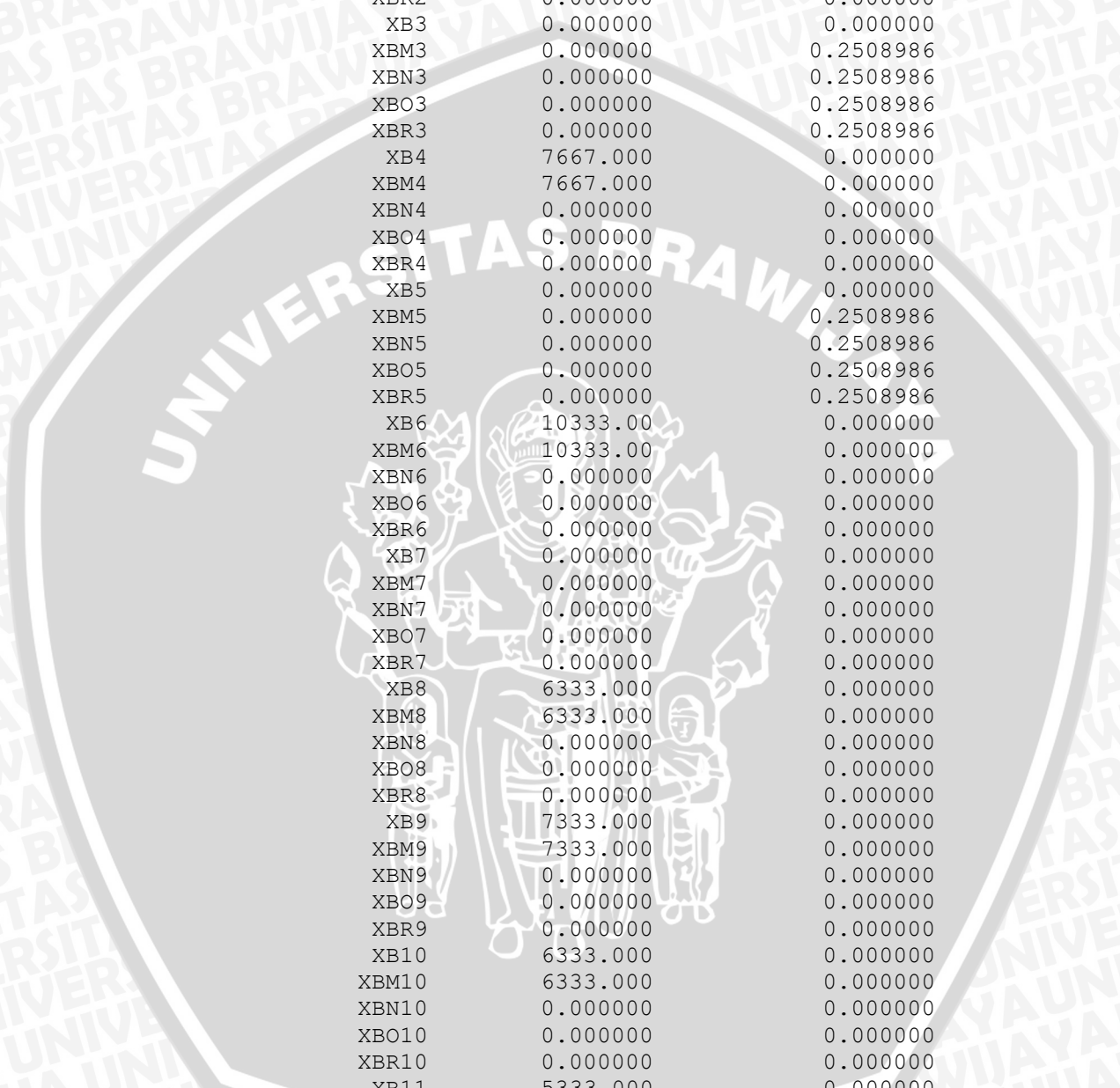
DP114	0.000000	0.000000
DP115	0.000000	0.000000
DP116	0.000000	0.000000
DP117	0.000000	0.000000
DP118	0.000000	0.000000
DP119	0.000000	0.000000
DP120	0.000000	0.000000
DP121	0.000000	1.000000
DP122	0.000000	1.000000
DP123	0.000000	1.000000
DP124	0.000000	1.000000
DP125	0.000000	1.000000
DP126	0.000000	1.000000
DP127	0.000000	1.000000
DP128	0.000000	1.000000
DP129	0.000000	1.000000
DP130	0.000000	1.000000
DP131	0.000000	1.000000
DP132	0.000000	1.000000
DP133	0.000000	1.000000
DP134	0.000000	1.000000
DP135	0.000000	1.000000
DP136	0.000000	1.000000
DP137	0.000000	1.000000
DP138	0.000000	1.000000
DP139	0.000000	1.000000
DP140	0.000000	1.000000
DP141	0.000000	1.000000
DP142	0.000000	1.000000
DP143	0.000000	1.000000
DP144	0.000000	1.000000
DP145	0.000000	1.000000
DP146	0.000000	1.000000
DP147	0.000000	1.000000
DP148	0.000000	1.000000
DP149	0.000000	1.000000
DP150	0.000000	1.000000
DP151	0.000000	1.000000
DP152	0.000000	1.000000
DP153	0.000000	1.000000
DP154	0.000000	1.000000
DP155	0.000000	1.000000
DP156	0.000000	1.000000
DP157	0.000000	1.000000
DP158	0.000000	1.000000
DP159	0.000000	1.000000
DP160	0.000000	1.000000
DP161	0.000000	1.000000
DP162	0.000000	1.000000
DP163	0.000000	1.000000
DP164	0.000000	1.000000
DP165	0.000000	1.000000
DP166	0.000000	1.000000
DP167	0.000000	1.000000
DP168	0.000000	1.000000
DP169	0.000000	1.000000
DP170	0.000000	1.000000
DP171	0.000000	1.000000
DP172	0.000000	1.000000
DP173	0.000000	1.000000
DP174	0.000000	1.000000



DP175	0.000000	1.000000
DP176	0.000000	1.000000
DP177	0.000000	1.000000
DP178	0.000000	1.000000
DP179	0.000000	1.000000
DP180	0.000000	1.000000
DP181	0.000000	1.000000
DP182	0.000000	1.000000
DP183	0.000000	1.000000
DP184	0.000000	1.000000
DP185	0.000000	1.000000
DP186	0.000000	1.000000
DP187	0.000000	1.000000
DP188	0.000000	1.000000
DP189	0.000000	1.000000
DP190	0.000000	1.000000
DP191	0.000000	1.000000
DP192	0.000000	1.000000
DP193	0.000000	1.000000
DP194	0.000000	1.000000
DP195	0.000000	1.000000
DP196	0.000000	1.000000
DP197	0.000000	1.000000
DP198	0.000000	1.000000
DP199	0.000000	1.000000
DP200	0.000000	1.000000
DP201	0.000000	1.000000
DP202	0.000000	1.000000
DP203	0.000000	1.000000
DP204	0.000000	1.000000
DP205	0.000000	1.000000
DP206	0.000000	1.000000
DP207	0.000000	1.000000
DP208	0.000000	1.000000
DP209	0.000000	1.000000
DP210	0.000000	1.000000
DP211	0.000000	1.000000
DP212	0.000000	1.000000
DP213	0.000000	1.000000
DP214	0.000000	1.000000
DP215	0.000000	1.000000
DP216	0.000000	1.000000
DP217	0.000000	1.000000
DP218	0.000000	1.000000
DP219	0.000000	1.000000
DP220	0.000000	1.000000
DP221	0.000000	0.5362319
DP222	0.000000	1.000000
DP223	0.000000	0.5362319
DP224	0.000000	1.000000
DP225	0.000000	1.000000
DP226	0.000000	1.000000
DP227	0.000000	1.000000
DP228	0.000000	1.000000
DP229	0.000000	1.000000
DP230	0.000000	1.000000
IA0	5600.000	0.000000
IB0	6700.000	0.000000
IC0	86150.00	0.000000
ID0	306750.0	0.000000
IE0	202000.0	0.000000



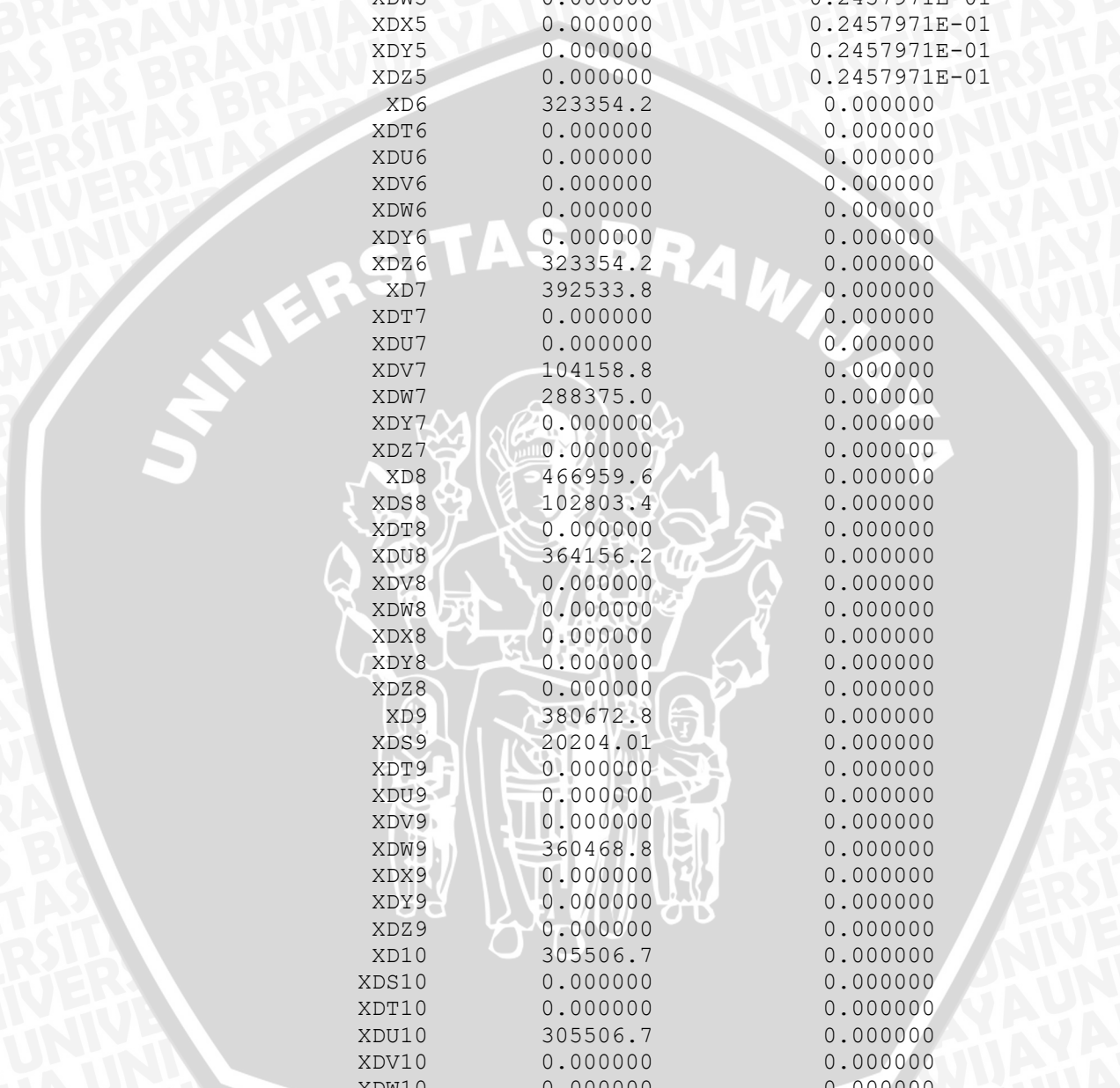
XA1	2320.000	0.000000
XAM1	0.000000	0.000000
XAN1	0.000000	0.000000
XAO1	0.000000	0.000000
XAR1	2320.000	0.000000
XA2	12488.81	0.000000
XAM2	0.000000	0.000000
XAN2	12488.81	0.000000
XAO2	0.000000	0.000000
XAR2	0.000000	0.000000
XA3	0.000000	0.000000
XAM3	0.000000	0.2986667
XAN3	0.000000	0.2986667
XAO3	0.000000	0.2986667
XAR3	0.000000	0.2986667
XA4	7991.192	0.000000
XAM4	7991.192	0.000000
XAN4	0.000000	0.000000
XAO4	0.000000	0.000000
XAR4	0.000000	0.000000
XA5	0.000000	0.000000
XAM5	0.000000	0.2986667
XAN5	0.000000	0.2986667
XAO5	0.000000	0.2986667
XAR5	0.000000	0.2986667
XA6	14720.00	0.000000
XAM6	14720.00	0.000000
XAN6	0.000000	0.000000
XAO6	0.000000	0.000000
XAR6	0.000000	0.000000
XA7	0.000000	0.000000
XAM7	0.000000	0.000000
XAN7	0.000000	0.000000
XAO7	0.000000	0.000000
XAR7	0.000000	0.000000
XA8	7920.000	0.000000
XAM8	7920.000	0.000000
XAN8	0.000000	0.000000
XAO8	0.000000	0.000000
XAR8	0.000000	0.000000
XA9	13600.00	0.000000
XAM9	13600.00	0.000000
XAN9	0.000000	0.000000
XAO9	0.000000	0.000000
XAR9	0.000000	0.000000
XA10	0.000000	0.000000
XAM10	0.000000	0.000000
XAN10	0.000000	0.000000
XAO10	0.000000	0.000000
XAR10	0.000000	0.000000
XA11	6800.000	0.000000
XAM11	6800.000	0.000000
XAN11	0.000000	0.000000
XAO11	0.000000	0.000000
XAR11	0.000000	0.000000
XA12	16900.00	0.000000
XAM12	16900.00	0.000000
XAN12	0.000000	0.000000
XAO12	0.000000	0.000000
XAR12	0.000000	0.000000
XB1	3967.000	0.000000



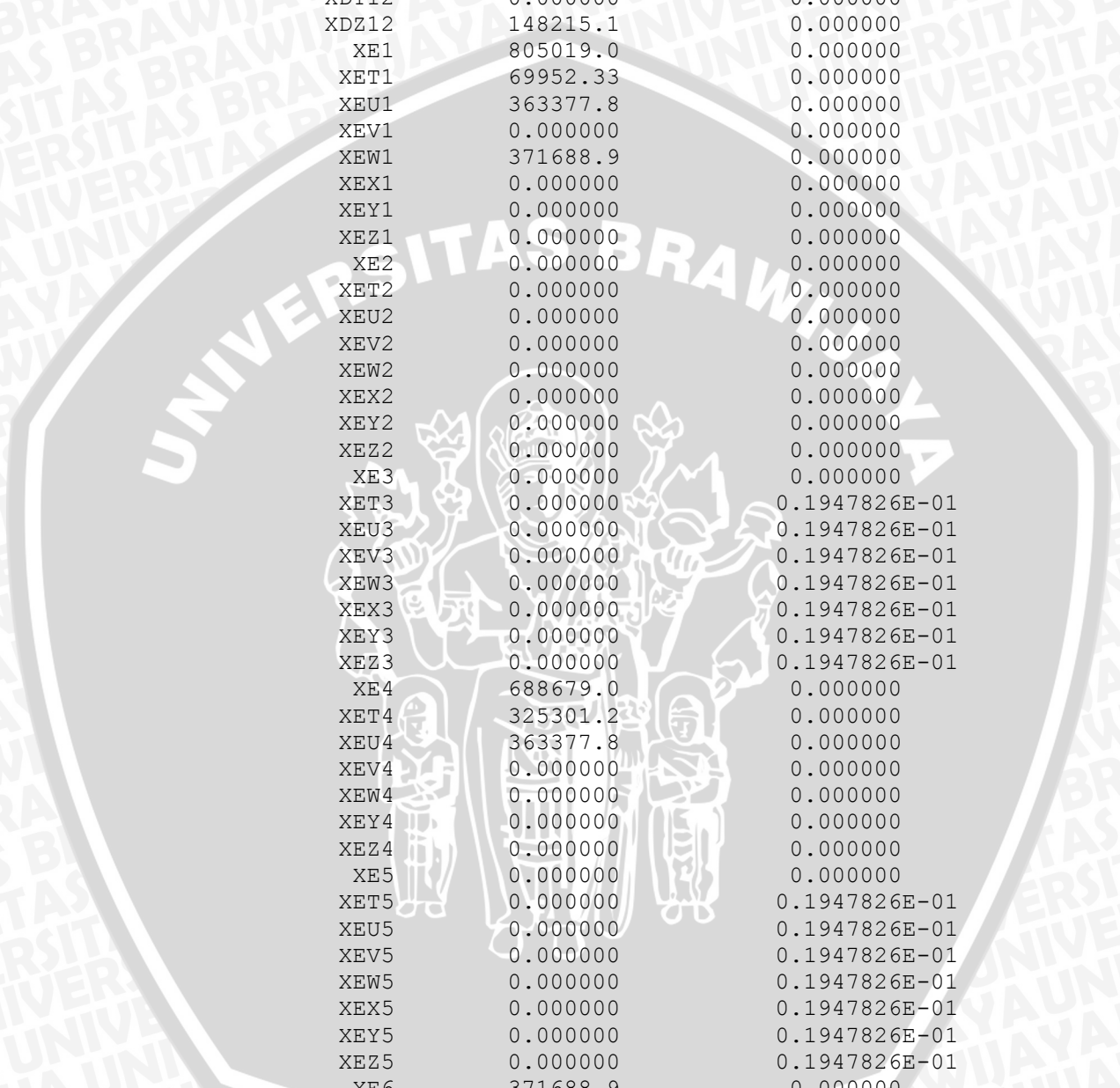
XBM1	0.000000	0.000000
XBN1	0.000000	0.000000
XBO1	0.000000	0.000000
XBR1	3967.000	0.000000
XB2	11000.00	0.000000
XBM2	0.000000	0.000000
XBN2	11000.00	0.000000
XBO2	0.000000	0.000000
XBR2	0.000000	0.000000
XB3	0.000000	0.000000
XBM3	0.000000	0.2508986
XBN3	0.000000	0.2508986
XBO3	0.000000	0.2508986
XBR3	0.000000	0.2508986
XB4	7667.000	0.000000
XBM4	7667.000	0.000000
XBN4	0.000000	0.000000
XBO4	0.000000	0.000000
XBR4	0.000000	0.000000
XB5	0.000000	0.000000
XBM5	0.000000	0.2508986
XBN5	0.000000	0.2508986
XBO5	0.000000	0.2508986
XBR5	0.000000	0.2508986
XB6	10333.00	0.000000
XBM6	10333.00	0.000000
XBN6	0.000000	0.000000
XBO6	0.000000	0.000000
XBR6	0.000000	0.000000
XB7	0.000000	0.000000
XBM7	0.000000	0.000000
XBN7	0.000000	0.000000
XBO7	0.000000	0.000000
XBR7	0.000000	0.000000
XB8	6333.000	0.000000
XBM8	6333.000	0.000000
XBN8	0.000000	0.000000
XBO8	0.000000	0.000000
XBR8	0.000000	0.000000
XB9	7333.000	0.000000
XBM9	7333.000	0.000000
XBN9	0.000000	0.000000
XBO9	0.000000	0.000000
XBR9	0.000000	0.000000
XB10	6333.000	0.000000
XBM10	6333.000	0.000000
XBN10	0.000000	0.000000
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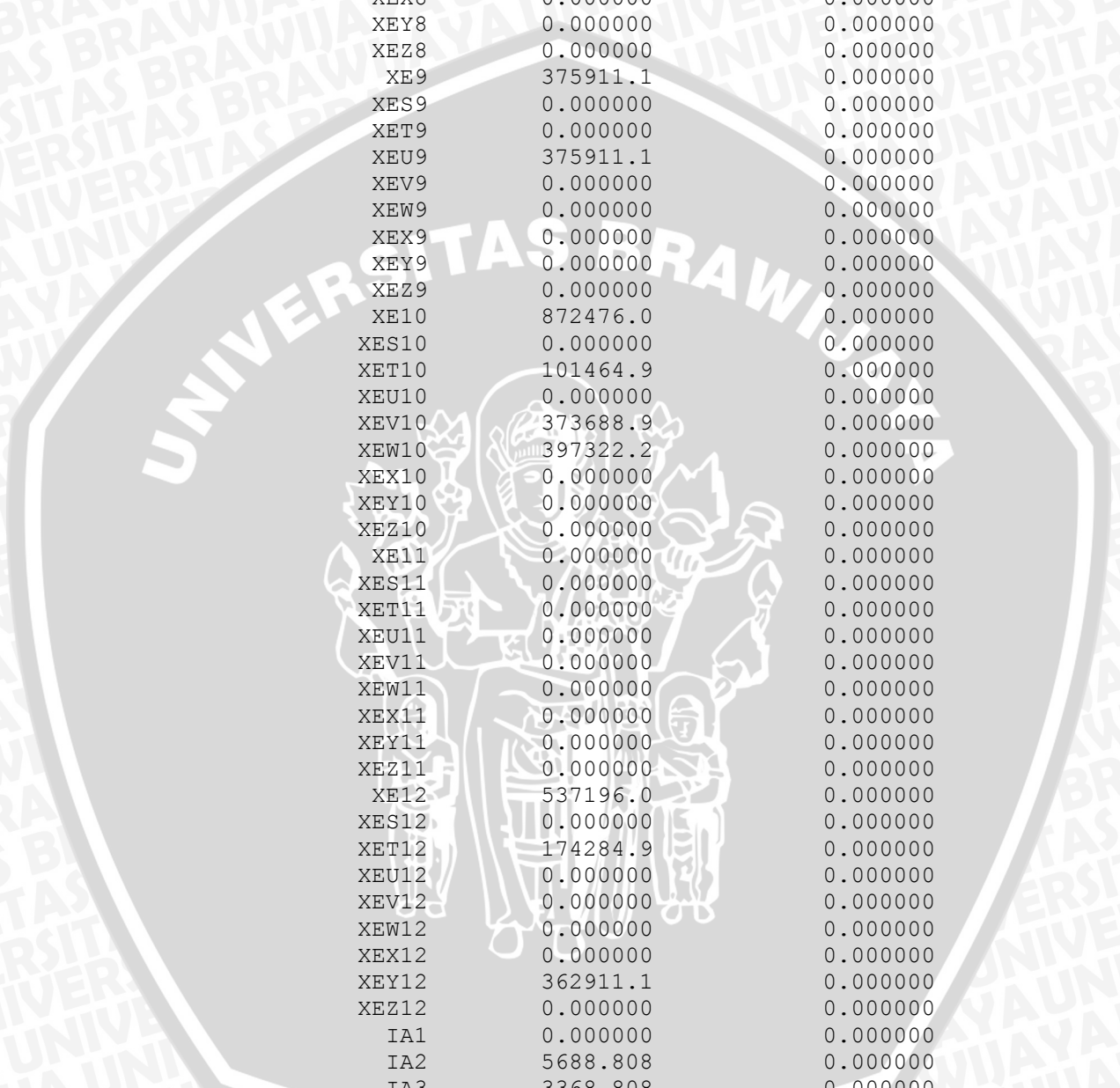
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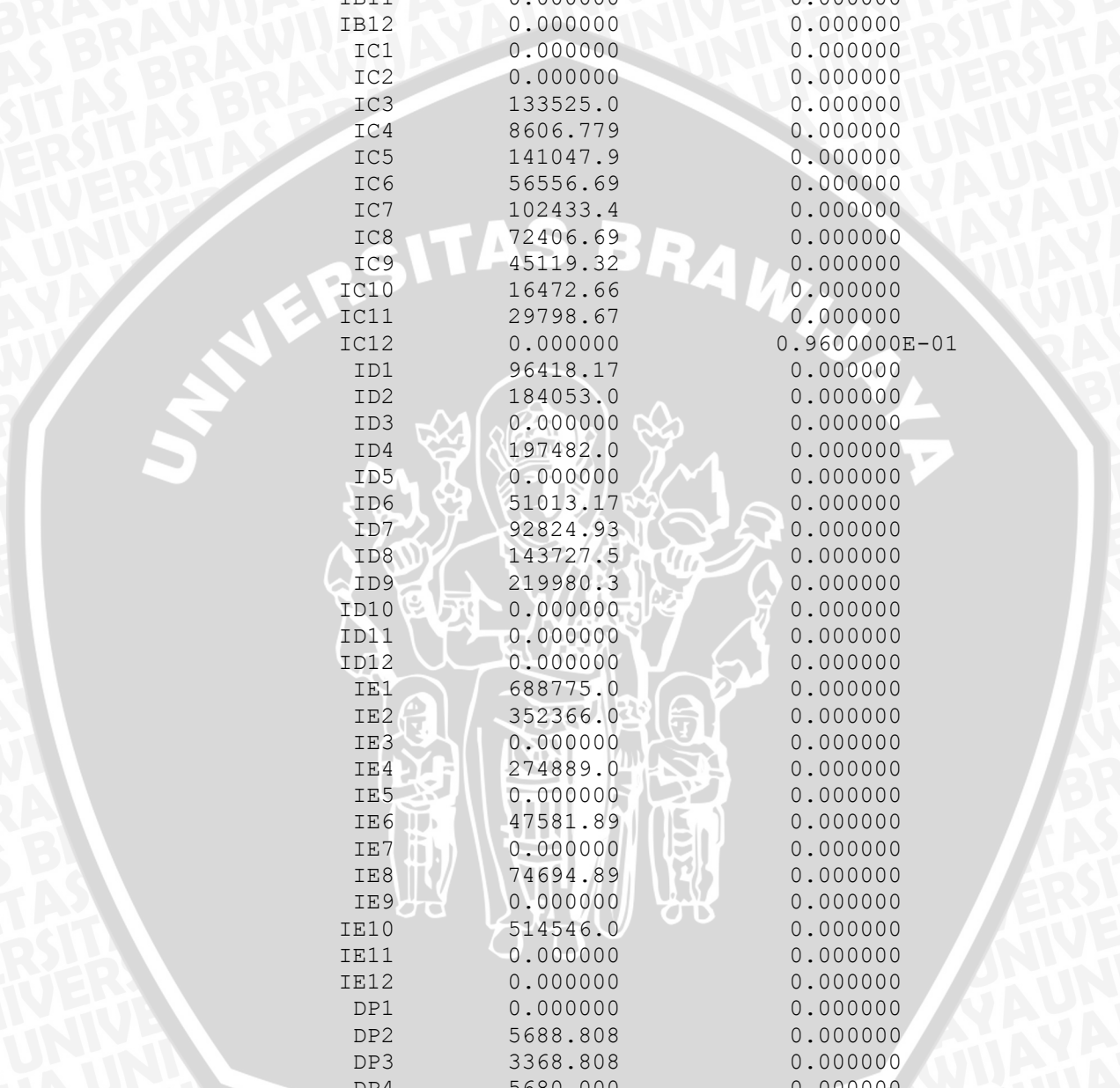
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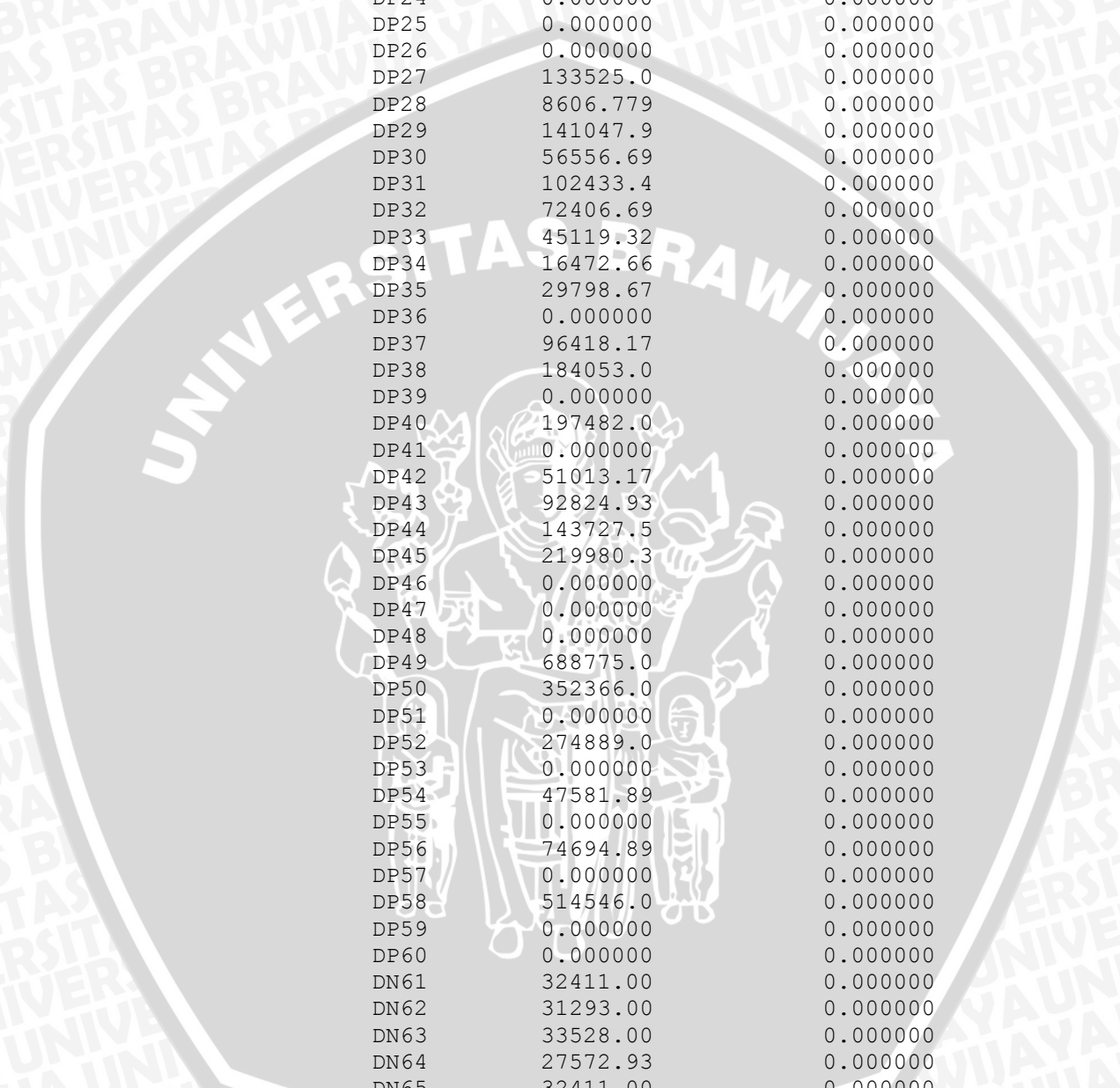
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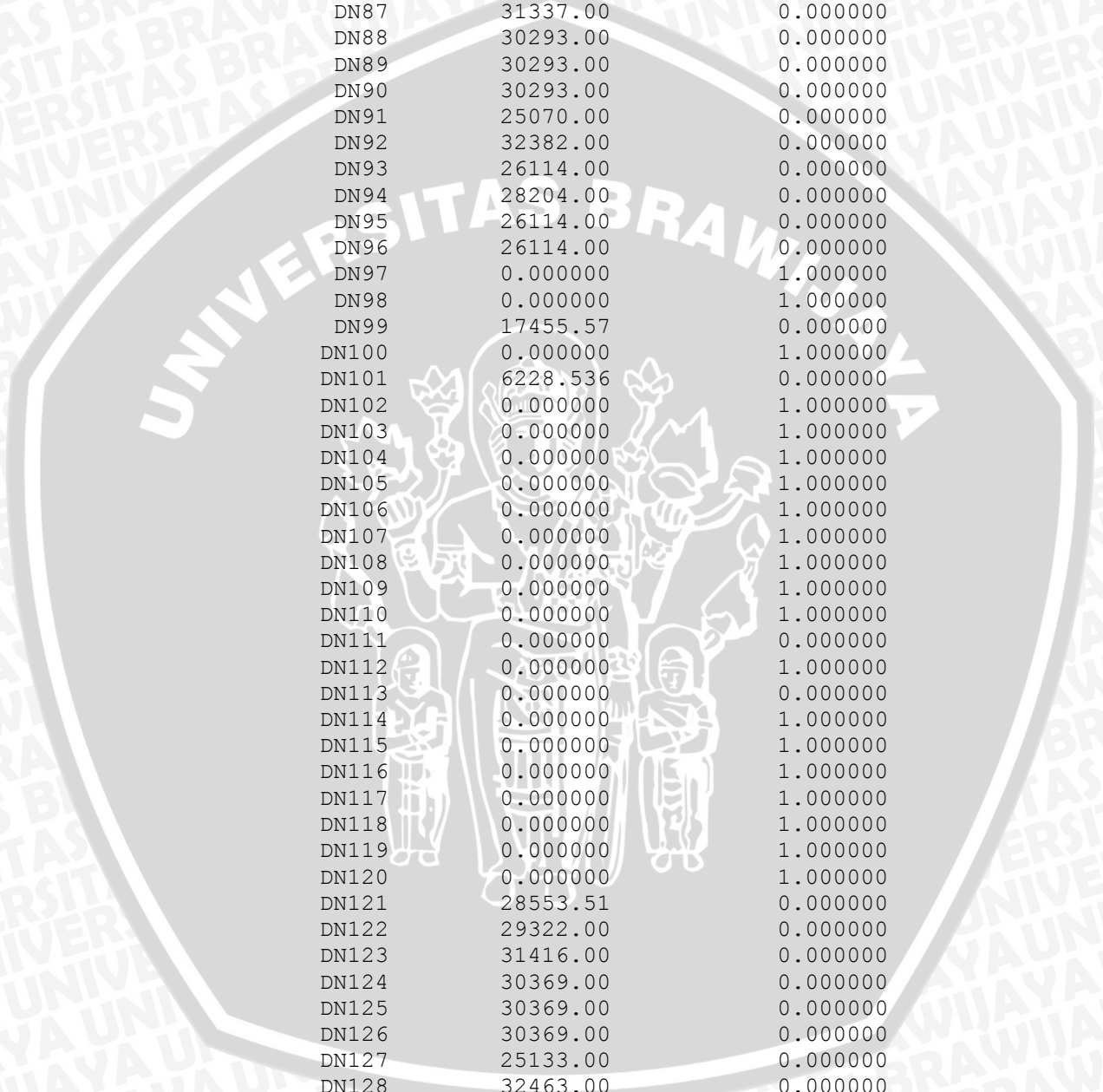
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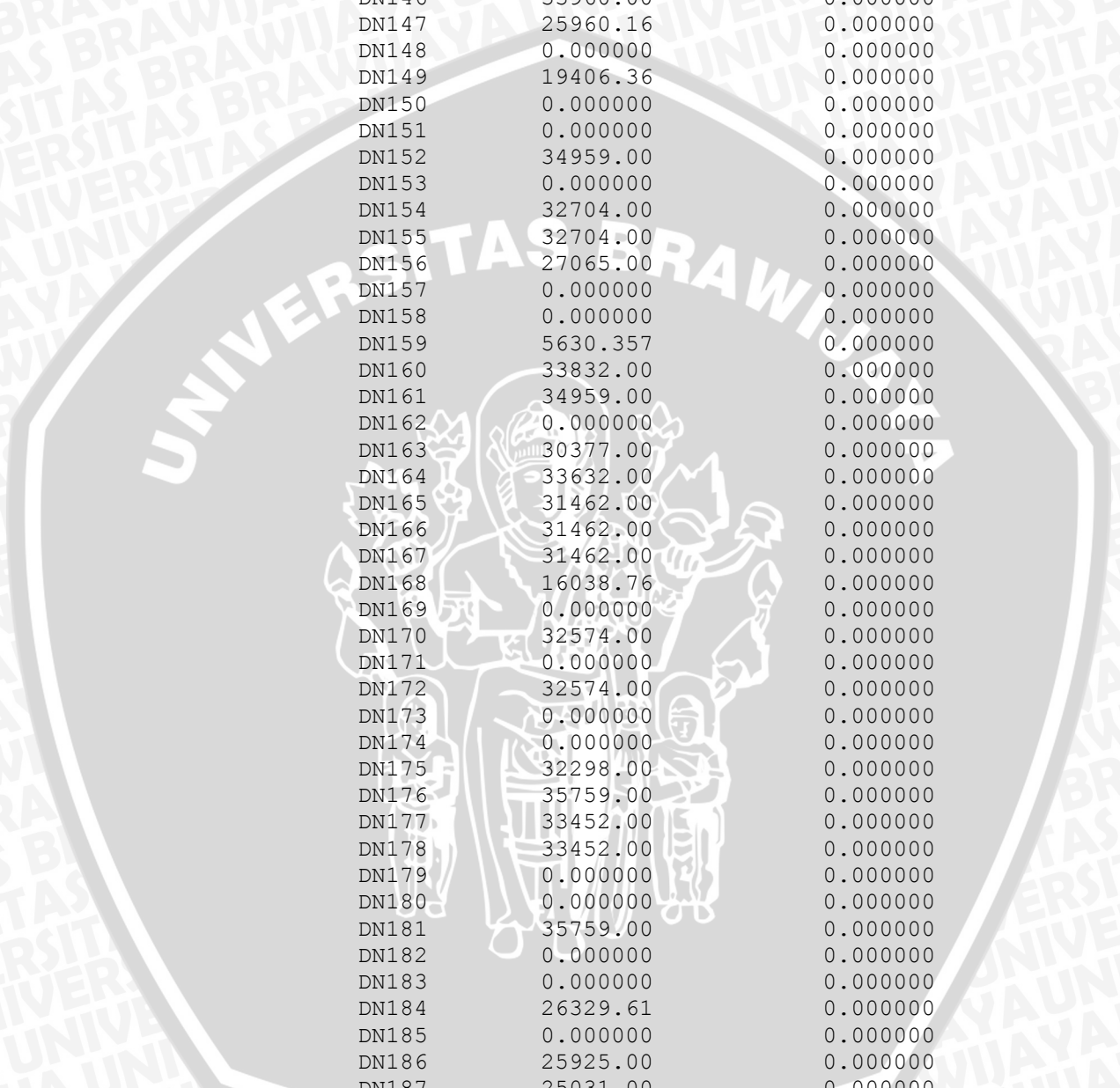
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IC3	133525.0	0.000000
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IC5	141047.9	0.000000
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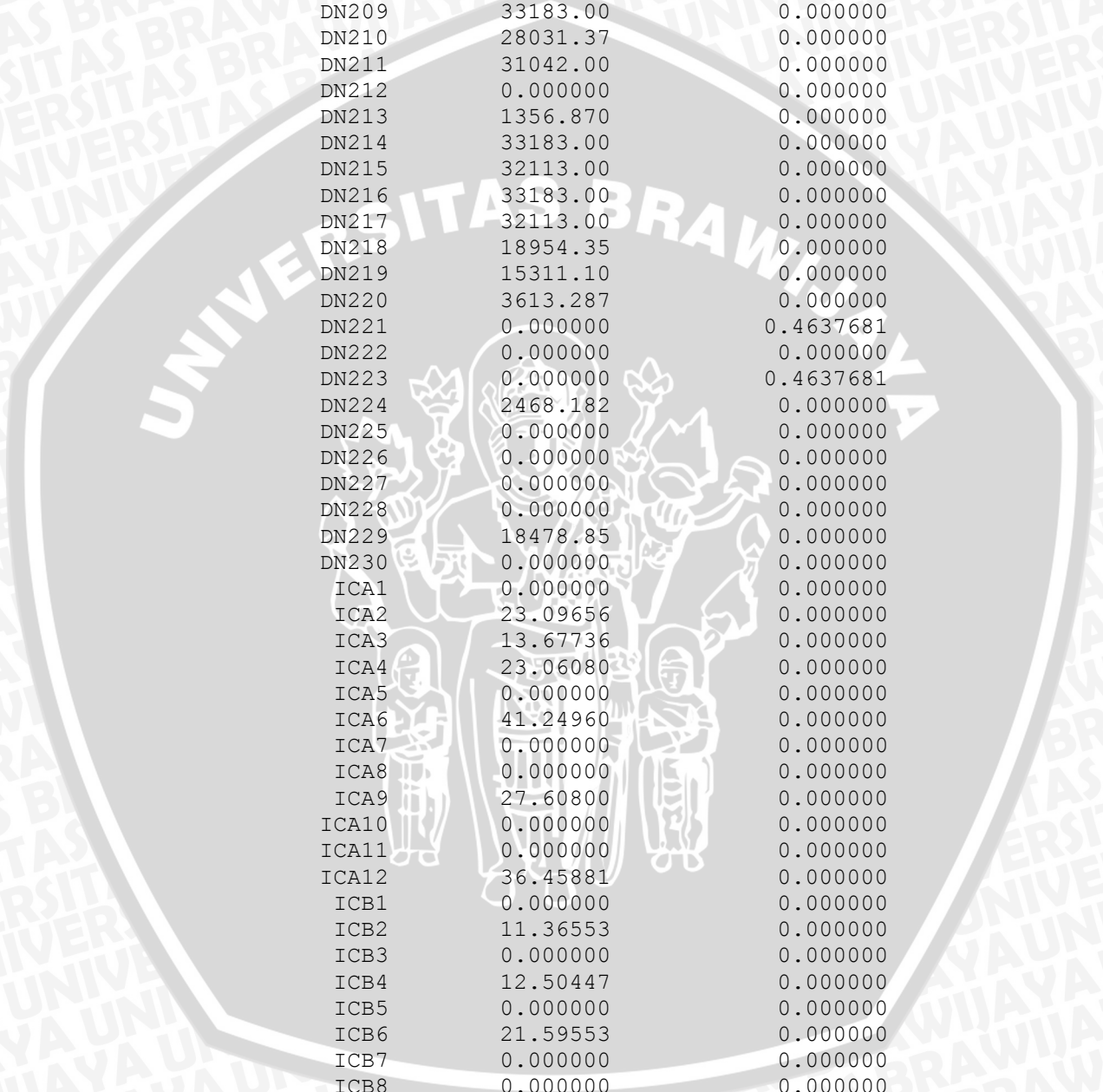
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ICC11	38.73827	0.000000
ICC12	0.000000	0.000000
ICD1	31.81799	0.000000
ICD2	60.73749	0.000000
ICD3	0.000000	0.000000
ICD4	65.16906	0.000000
ICD5	0.000000	0.000000
ICD6	16.83434	0.000000
ICD7	30.63223	0.000000
ICD8	47.43009	0.000000
ICD9	72.59350	0.000000
ICD10	0.000000	0.000000
ICD11	0.000000	0.000000
ICD12	0.000000	0.000000
ICE1	179.0815	0.000000
ICE2	91.61516	0.000000
ICE3	0.000000	0.000000
ICE4	71.47114	0.000000
ICE5	0.000000	0.000000
ICE6	12.37129	0.000000
ICE7	0.000000	0.000000
ICE8	19.42067	0.000000
ICE9	0.000000	0.000000
ICE10	133.7820	0.000000
ICE11	0.000000	0.000000
ICE12	0.000000	0.000000
TC	2447740.	0.000000

