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ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย



APPENDICES

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

Appendix A. Relation between lb/gal, specific gravity, and °API

°API	Tenths of degrees									
	0	1	2	3	4	5	6	7	8	9
0	8.962	8.956	8.949	8.942	8.935	8.928	8.922	8.915	8.908	8.901
	1.0760	1.0752	1.0744	1.0736	1.0728	1.0720	1.0712	1.0703	1.0695	1.0687
1	8.895	8.888	8.881	8.875	8.868	8.861	8.855	8.848	8.841	8.835
	1.0679	1.0671	1.0663	1.0655	1.0647	1.0639	1.0631	1.0623	1.0615	1.0607
2	8.828	8.821	8.815	8.808	8.802	8.795	8.788	8.782	8.775	8.769
	1.0599	1.0591	1.0583	1.0575	1.0568	1.0560	1.0552	1.0544	1.0536	1.0528
3	8.762	8.756	8.749	8.743	8.736	8.730	8.723	8.717	8.710	8.704
	1.0520	1.0513	1.0505	1.0497	1.0489	1.0481	1.0474	1.0466	1.0458	1.0451
4	8.698	8.691	8.685	8.678	8.672	8.666	8.659	8.653	8.646	8.640
	1.0443	1.0435	1.0427	1.0420	1.0412	1.0404	1.0397	1.0389	1.0382	1.0374
5	8.634	8.627	8.621	8.615	8.608	8.602	8.596	8.590	8.583	8.577
	1.0366	1.0359	1.0351	1.0344	1.0336	1.0328	1.0321	1.0313	1.0306	1.0298
6	8.571	8.565	8.558	8.552	8.546	8.540	8.534	8.527	8.521	8.515
	1.0291	1.0283	1.0276	1.0269	1.0261	1.0254	1.0246	1.0239	1.0231	1.0224
7	8.509	8.503	8.497	8.490	8.484	8.478	8.472	8.466	8.460	8.454
	1.0217	1.0209	1.0202	1.0195	1.0187	1.0180	1.0173	1.0165	1.0158	1.0151
8	8.448	8.442	8.436	8.430	8.424	8.418	8.412	8.406	8.400	8.394
	1.0143	1.0136	1.0129	1.0122	1.0114	1.0107	1.0100	1.0093	1.0086	1.0078
9	8.388	8.382	8.376	8.370	8.364	8.358	8.352	8.346	8.340	8.334
	1.0071	1.0064	1.0057	1.0050	1.0043	1.0035	1.0028	1.0021	1.0014	1.0007
10	8.328	8.322	8.317	8.311	8.305	8.299	8.293	8.287	8.282	8.276
	1.0000	0.9993	0.9986	0.9979	0.9972	0.9965	0.9958	0.9951	0.9944	0.9937
11	8.270	8.264	8.258	8.252	8.246	8.241	8.235	8.229	8.223	8.218
	0.9930	0.9923	0.9916	0.9909	0.9902	0.9895	0.9888	0.9881	0.9874	0.9868
12	8.212	8.206	8.201	8.195	8.189	8.183	8.178	8.172	8.166	8.161
	0.9861	0.9854	0.9847	0.9840	0.9833	0.9826	0.9820	0.9813	0.9806	0.9799
13	8.155	8.150	8.144	8.138	8.132	8.127	8.122	8.116	8.110	8.105
	0.9792	0.9786	0.9779	0.9772	0.9765	0.9759	0.9752	0.9745	0.9738	0.9732
14	8.099	8.093	8.088	8.082	8.076	8.071	8.066	8.061	8.055	8.049
	0.9725	0.9718	0.9712	0.9705	0.9698	0.9692	0.9685	0.9679	0.9672	0.9665
15	8.044	8.038	8.033	8.027	8.021	8.016	8.011	8.006	8.000	7.995
	0.9659	0.9652	0.9646	0.9639	0.9632	0.9626	0.9619	0.9613	0.9606	0.9600
16	7.989	7.984	7.978	7.973	7.967	7.962	7.956	7.951	7.946	7.940
	0.9593	0.9587	0.9580	0.9574	0.9567	0.9561	0.9554	0.9548	0.9541	0.9535
17	7.935	7.930	7.925	7.919	7.914	7.909	7.903	7.898	7.893	7.887
	0.9529	0.9522	0.9516	0.9509	0.9503	0.9497	0.9490	0.9484	0.9478	0.9471
18	7.882	7.877	7.871	7.866	7.861	7.856	7.851	7.846	7.841	7.835
	0.9465	0.9459	0.9452	0.9446	0.9440	0.9433	0.9427	0.9421	0.9415	0.9408
19	7.830	7.825	7.820	7.814	7.809	7.804	7.799	7.793	7.788	7.783
	0.9402	0.9396	0.9390	0.9383	0.9377	0.9371	0.9365	0.9358	0.9352	0.9346
20	7.778	7.773	7.768	7.762	7.757	7.752	7.747	7.742	7.737	7.732
	0.9340	0.9334	0.9328	0.9321	0.9315	0.9309	0.9303	0.9297	0.9291	0.9285
21	7.727	7.722	7.717	7.711	7.706	7.701	7.696	7.691	7.686	7.681
	0.9279	0.9273	0.9267	0.9260	0.9254	0.9248	0.9242	0.9236	0.9230	0.9224
22	7.676	7.671	7.666	7.661	7.656	7.651	7.646	7.641	7.636	7.632
	0.9218	0.9212	0.9206	0.9200	0.9194	0.9188	0.9182	0.9176	0.9170	0.9165
23	7.627	7.622	7.617	7.612	7.607	7.602	7.597	7.592	7.587	7.583
	0.9159	0.9153	0.9147	0.9141	0.9135	0.9129	0.9123	0.9117	0.9111	0.9106
24	7.578	7.573	7.568	7.563	7.558	7.554	7.549	7.544	7.539	7.534
	0.9100	0.9094	0.9088	0.9082	0.9076	0.9071	0.9065	0.9059	0.9053	0.9047
25	7.529	7.524	7.519	7.514	7.509	7.505	7.500	7.495	7.491	7.486
	0.9042	0.9036	0.9030	0.9024	0.9018	0.9013	0.9007	0.9001	0.8996	0.8990

Appendix A. (continue)

°API	Tenths of degrees									
	0	1	2	3	4	5	6	7	8	9
51	6.455	6.451	6.448	6.445	6.441	6.437	6.434	6.430	6.427	6.423
	0.7753	0.7749	0.7745	0.7741	0.7736	0.7732	0.7728	0.7724	0.7720	0.7715
52	6.420	6.416	6.413	6.410	6.406	6.402	6.399	6.396	6.392	6.389
	0.7711	0.7707	0.7703	0.7699	0.7694	0.7690	0.7686	0.7682	0.7678	0.7674
53	6.385	6.381	6.378	6.375	6.371	6.368	6.365	6.361	6.357	6.354
	0.7669	0.7665	0.7661	0.7657	0.7653	0.7649	0.7645	0.7640	0.7636	0.7632
54	6.350	6.347	6.344	6.340	6.337	6.334	6.330	6.326	6.323	6.320
	0.7628	0.7624	0.7620	0.7616	0.7612	0.7608	0.7603	0.7599	0.7595	0.7591
55	6.316	6.313	6.310	6.306	6.303	6.300	6.296	6.293	6.290	6.287
	0.7587	0.7583	0.7579	0.7575	0.7571	0.7567	0.7563	0.7559	0.7555	0.7551
56	6.283	6.280	6.276	6.273	6.270	6.266	6.263	6.259	6.256	6.253
	0.7547	0.7543	0.7539	0.7535	0.7531	0.7527	0.7523	0.7519	0.7515	0.7511
57	6.249	6.246	6.243	6.240	6.236	6.233	6.229	6.226	6.223	6.219
	0.7507	0.7503	0.7499	0.7495	0.7491	0.7487	0.7483	0.7479	0.7475	0.7471
58	6.216	6.213	6.209	6.206	6.203	6.199	6.196	6.193	6.190	6.187
	0.7467	0.7463	0.7459	0.7455	0.7451	0.7447	0.7443	0.7440	0.7436	0.7432
59	6.184	6.180	6.177	6.174	6.170	6.167	6.164	6.161	6.158	6.154
	0.7428	0.7424	0.7420	0.7416	0.7412	0.7408	0.7405	0.7401	0.7397	0.7393
60	6.151	6.148	6.144	6.141	6.138	6.135	6.132	6.129	6.125	6.122
	0.7389	0.7385	0.7381	0.7377	0.7374	0.7370	0.7366	0.7362	0.7358	0.7354
61	6.119	6.116	6.113	6.109	6.106	6.103	6.100	6.097	6.094	6.090
	0.7351	0.7347	0.7343	0.7339	0.7335	0.7332	0.7328	0.7324	0.7320	0.7316
62	6.087	6.084	6.081	6.078	6.075	6.072	6.068	6.065	6.062	6.059
	0.7313	0.7309	0.7305	0.7301	0.7298	0.7294	0.7290	0.7286	0.7283	0.7279
63	6.056	6.053	6.050	6.047	6.044	6.040	6.037	6.034	6.031	6.028
	0.7275	0.7271	0.7268	0.7264	0.7260	0.7256	0.7253	0.7249	0.7245	0.7242
64	6.025	6.022	6.019	6.016	6.013	6.010	6.007	6.004	6.000	5.997
	0.7238	0.7234	0.7230	0.7227	0.7223	0.7219	0.7216	0.7212	0.7208	0.7205
65	5.994	5.991	5.988	5.985	5.982	5.979	5.976	5.973	5.970	5.967
	0.7201	0.7197	0.7194	0.7190	0.7186	0.7183	0.7179	0.7175	0.7172	0.7168
66	5.964	5.961	5.958	5.955	5.952	5.949	5.946	5.943	5.940	5.937
	0.7165	0.7161	0.7157	0.7154	0.7150	0.7146	0.7143	0.7139	0.7136	0.7132
67	5.934	5.931	5.928	5.925	5.922	5.919	5.916	5.913	5.910	5.907
	0.7128	0.7125	0.7121	0.7118	0.7114	0.7111	0.7107	0.7103	0.7100	0.7096
68	5.904	5.901	5.898	5.895	5.892	5.889	5.886	5.883	5.880	5.877
	0.7093	0.7089	0.7086	0.7082	0.7079	0.7075	0.7071	0.7068	0.7064	0.7061
69	5.874	5.871	5.868	5.866	5.863	5.860	5.857	5.854	5.851	5.848
	0.7057	0.7054	0.7050	0.7047	0.7043	0.7040	0.7036	0.7033	0.7029	0.7026
70	5.845	5.842	5.839	5.836	5.833	5.831	5.828	5.825	5.823	5.820
	0.7022	0.7019	0.7015	0.7012	0.7008	0.7005	0.7001	0.6998	0.6995	0.6991
71	5.817	5.814	5.811	5.808	5.805	5.802	5.799	5.796	5.793	5.791
	0.6988	0.6984	0.6981	0.6977	0.6974	0.6970	0.6967	0.6964	0.6960	0.6957
72	5.788	5.785	5.782	5.779	5.776	5.773	5.771	5.768	5.765	5.762
	0.6953	0.6950	0.6946	0.6943	0.6940	0.6936	0.6933	0.6929	0.6926	0.6923
73	5.759	5.757	5.754	5.751	5.748	5.745	5.743	5.740	5.737	5.734
	0.6919	0.6916	0.6913	0.6909	0.6906	0.6902	0.6899	0.6895	0.6892	0.6889
74	5.731	5.728	5.726	5.723	5.720	5.718	5.715	5.712	5.709	5.706
	0.6886	0.6882	0.6879	0.6876	0.6872	0.6869	0.6866	0.6862	0.6859	0.6856
75	5.703	5.701	5.698	5.695	5.693	5.690	5.687	5.685	5.682	5.679
	0.6852	0.6849	0.6846	0.6842	0.6839	0.6836	0.6832	0.6829	0.6826	0.6823

Appendix A. (continue)

°API	Tenths of degrees									
	0	1	2	3	4	5	6	7	8	9
26	7.481	7.476	7.472	7.467	7.462	7.458	7.453	7.448	7.443	7.438
	0.8984	0.8978	0.8973	0.8967	0.8961	0.8956	0.8950	0.8944	0.8939	0.8933
27	7.434	7.429	7.424	7.420	7.415	7.410	7.406	7.401	7.397	7.392
	0.8927	0.8922	0.8916	0.8911	0.8905	0.8899	0.8894	0.8888	0.8883	0.8877
28	7.387	7.383	7.378	7.373	7.368	7.364	7.360	7.355	7.351	7.346
	0.8871	0.8866	0.8860	0.8855	0.8849	0.8844	0.8838	0.8833	0.8827	0.8822
29	7.341	7.337	7.332	7.328	7.323	7.318	7.314	7.309	7.305	7.300
	0.8816	0.8811	0.8805	0.8800	0.8794	0.8789	0.8783	0.8778	0.8772	0.8767
30	7.296	7.291	7.287	7.282	7.278	7.273	7.268	7.264	7.259	7.255
	0.8762	0.8756	0.8751	0.8745	0.8740	0.8735	0.8729	0.8724	0.8718	0.8713
31	7.251	7.246	7.242	7.238	7.233	7.228	7.224	7.219	7.215	7.211
	0.8708	0.8702	0.8697	0.8692	0.8686	0.8681	0.8676	0.8670	0.8665	0.8660
32	7.206	7.202	7.198	7.193	7.188	7.184	7.180	7.176	7.171	7.167
	0.8654	0.8649	0.8644	0.8639	0.8633	0.8628	0.8623	0.8618	0.8612	0.8607
33	7.163	7.158	7.153	7.149	7.145	7.141	7.137	7.132	7.128	7.123
	0.8602	0.8597	0.8591	0.8586	0.8581	0.8576	0.8571	0.8565	0.8560	0.8555
34	7.119	7.115	7.111	7.106	7.102	7.098	7.093	7.089	7.085	7.081
	0.8550	0.8545	0.8540	0.8534	0.8529	0.8524	0.8519	0.8514	0.8509	0.8504
35	7.076	7.072	7.068	7.063	7.059	7.055	7.051	7.047	7.042	7.038
	0.8498	0.8493	0.8488	0.8483	0.8478	0.8473	0.8468	0.8463	0.8458	0.8453
36	7.034	7.030	7.026	7.022	7.018	7.013	7.009	7.005	7.001	6.997
	0.8448	0.8443	0.8438	0.8433	0.8428	0.8423	0.8418	0.8413	0.8408	0.8403
37	6.993	6.989	6.985	6.980	6.976	6.972	6.968	6.964	6.960	6.955
	0.8398	0.8393	0.8388	0.8383	0.8378	0.8373	0.8368	0.8363	0.8358	0.8353
38	6.951	6.947	6.943	6.939	6.935	6.930	6.926	6.922	6.918	6.914
	0.8348	0.8343	0.8338	0.8333	0.8328	0.8324	0.8319	0.8314	0.8309	0.8304
39	6.910	6.906	6.902	6.898	6.894	6.890	6.886	6.882	6.878	6.874
	0.8299	0.8294	0.8289	0.8285	0.8280	0.8275	0.8270	0.8265	0.8260	0.8256
40	6.870	6.866	6.862	6.858	6.854	6.850	6.846	6.842	6.838	6.834
	0.8251	0.8246	0.8241	0.8236	0.8232	0.8227	0.8222	0.8217	0.8212	0.8208
41	6.830	6.826	6.822	6.818	6.814	6.810	6.806	6.802	6.798	6.794
	0.8203	0.8198	0.8193	0.8189	0.8184	0.8179	0.8174	0.8170	0.8165	0.8160
42	6.790	6.786	6.782	6.779	6.775	6.771	6.767	6.763	6.759	6.756
	0.8155	0.8151	0.8146	0.8142	0.8137	0.8132	0.8128	0.8123	0.8118	0.8114
43	6.752	6.748	6.744	6.740	6.736	6.732	6.728	6.724	6.720	6.716
	0.8109	0.8104	0.8100	0.8095	0.8090	0.8086	0.8081	0.8076	0.8072	0.8067
44	6.713	6.709	6.705	6.701	6.697	6.694	6.690	6.686	6.682	6.679
	0.8063	0.8058	0.8054	0.8049	0.8044	0.8040	0.8035	0.8031	0.8026	0.8022
45	6.675	6.671	6.667	6.663	6.660	6.656	6.652	6.648	6.645	6.641
	0.8017	0.8012	0.8008	0.8003	0.7999	0.7994	0.7990	0.7985	0.7981	0.7976
46	6.637	6.633	6.630	6.626	6.622	6.618	6.615	7.611	6.607	6.604
	0.7972	0.7967	0.7963	0.7958	0.7954	0.7949	0.7945	0.7941	0.7936	0.7932
47	6.600	6.596	6.592	6.589	6.585	6.582	6.578	6.574	6.571	6.567
	0.7927	0.7923	0.7918	0.7914	0.7909	0.7905	0.7901	0.7896	0.7892	0.7887
48	6.563	6.560	6.556	6.552	6.548	6.545	6.541	6.537	6.534	6.530
	0.7883	0.7879	0.7874	0.7870	0.7865	0.7861	0.7857	0.7852	0.7848	0.7844
49	6.526	6.523	6.520	6.516	6.512	6.509	6.505	6.501	6.498	6.494
	0.7839	0.7835	0.7831	0.7826	0.7822	0.7818	0.7813	0.7809	0.7805	0.7800
50	6.490	6.487	6.484	6.480	6.476	6.473	6.469	6.466	6.462	6.459
	0.7796	0.7792	0.7788	0.7783	0.7779	0.7775	0.7770	0.7766	0.7762	0.7758

Appendix A. (continue)

°API	Tenths of degrees									
	0	1	2	3	4	5	6	7	8	9
76	5.676	5.673	5.671	5.668	5.665	5.662	5.660	5.657	5.654	5.652
	0.6819	0.6810	0.6813	0.6809	0.6806	0.6803	0.6800	0.6796	0.6793	0.6790
77	5.649	5.646	5.643	5.641	5.638	5.635	5.632	5.630	5.627	5.624
	0.6787	0.6783	0.6780	0.6777	0.6774	0.6770	0.6767	0.6764	0.6761	0.6757
78	5.622	5.619	5.617	5.614	5.611	5.608	5.606	5.603	5.600	5.598
	0.6754	0.6751	0.6748	0.6745	0.6741	0.6738	0.6735	0.6732	0.6728	0.6725
79	5.595	5.592	5.590	5.587	5.584	5.582	5.579	5.577	5.574	5.571
	0.6722	0.6719	0.6716	0.6713	0.6709	0.6706	0.6703	0.6700	0.6697	0.6693
80	5.568	5.566	5.563	5.561	5.558	5.556	5.553	5.550	5.548	5.545
	0.6690	0.6687	0.6684	0.6681	0.6678	0.6675	0.6671	0.6668	0.6665	0.6662
81	5.542	5.540	5.537	5.534	5.532	5.529	5.526	5.524	5.522	5.519
	0.6659	0.6656	0.6653	0.6649	0.6646	0.6643	0.6640	0.6637	0.6634	0.6631
82	5.516	5.514	5.511	5.508	5.506	5.503	5.501	5.498	5.496	5.493
	0.6628	0.6625	0.6621	0.6618	0.6615	0.6612	0.6609	0.6606	0.6603	0.6600
83	5.491	5.489	5.486	5.483	5.480	5.477	5.475	5.472	5.470	5.467
	0.6597	0.6594	0.6591	0.6588	0.6584	0.6581	0.6578	0.6575	0.6572	0.6569
84	5.465	5.462	5.460	5.458	5.455	5.453	5.450	5.448	5.445	5.443
	0.6566	0.6563	0.6560	0.6557	0.6554	0.6551	0.6548	0.6545	0.6542	0.6539
85	5.440	5.437	5.435	5.432	5.430	5.427	5.425	5.422	5.420	5.417
	0.6536	0.6533	0.6530	0.6527	0.6524	0.6521	0.6518	0.6515	0.6512	0.6509
86	5.415	5.412	5.410	5.407	5.405	5.402	5.400	5.397	5.395	5.392
	0.6506	0.6503	0.6500	0.6497	0.6494	0.6491	0.6488	0.6485	0.6482	0.6479
87	5.390	5.387	5.385	5.382	5.380	5.377	5.375	5.372	5.370	5.367
	0.6476	0.6473	0.6470	0.6467	0.6464	0.6461	0.6458	0.6455	0.6452	0.6449
88	5.365	5.363	5.361	5.358	5.356	5.353	5.351	5.348	5.346	5.343
	0.6446	0.6444	0.6441	0.6438	0.6435	0.6432	0.6429	0.6426	0.6423	0.6420
89	5.341	5.338	5.336	5.334	5.331	5.329	5.326	5.324	5.321	5.319
	0.6417	0.6414	0.6411	0.6409	0.6406	0.6403	0.6400	0.6397	0.6394	0.6391
90	5.316	5.314	5.312	5.310	5.307	5.305	5.302	5.300	5.297	5.295
	0.6388	0.6385	0.6382	0.6380	0.6377	0.6374	0.6371	0.6368	0.6365	0.6362
91	5.293	5.291	5.288	5.286	5.283	5.281	5.278	5.276	5.274	5.271
	0.6360	0.6357	0.6354	0.6351	0.6348	0.6345	0.6342	0.6340	0.6337	0.6334
92	5.269	5.266	5.264	5.262	5.260	5.257	5.254	5.252	5.250	5.248
	0.6331	0.6328	0.6325	0.6323	0.6320	0.6317	0.6314	0.6311	0.6309	0.6306
93	5.246	5.243	5.240	5.238	5.236	5.234	5.232	5.229	5.227	5.225
	0.6303	0.6300	0.6297	0.6294	0.6292	0.6289	0.6286	0.6283	0.6281	0.6278
94	5.222	5.220	5.217	5.215	5.213	5.210	5.208	5.206	5.204	5.201
	0.6275	0.6272	0.6269	0.6267	0.6264	0.6261	0.6258	0.6256	0.6253	0.6250
95	5.199	5.196	5.194	5.192	5.190	5.187	5.185	5.183	5.180	5.179
	0.6247	0.6244	0.6242	0.6239	0.6236	0.6233	0.6231	0.6228	0.6225	0.6223
96	5.176	5.174	5.172	5.170	5.167	5.164	5.162	5.160	5.158	5.156
	0.6220	0.6217	0.6214	0.6212	0.6209	0.6206	0.6203	0.6201	0.6198	0.6195
97	5.154	5.151	5.149	5.146	5.144	5.142	5.140	5.138	5.136	5.133
	0.6193	0.6190	0.6187	0.6184	0.6182	0.6179	0.6176	0.6174	0.6171	0.6168
98	5.131	5.129	5.126	5.124	5.122	5.120	5.118	5.116	5.113	5.111
	0.6166	0.6163	0.6160	0.6158	0.6155	0.6152	0.6150	0.6147	0.6144	0.6141
99	5.109	5.107	5.105	5.102	5.100	5.098	5.096	5.092	5.091	5.089
	0.6139	0.6136	0.6134	0.6131	0.6128	0.6126	0.6123	0.6120	0.6118	0.6115

Appendix A. (continue)

°API	Degrees									
	0	1	2	3	4	5	6	7	8	9
100	5.086	5.065	5.043	5.021	5.000	4.979	4.957	4.936	4.915	4.895
	0.6112	0.6086	0.6060	0.6034	0.6008	0.5983	0.5957	0.5932	0.5907	0.5883
110	4.876	4.855	4.835	4.815	4.795	4.776	4.757	4.738	4.719	4.699
	0.5659	0.5835	0.5811	0.5787	0.5763	0.5740	0.5717	0.5694	0.5671	0.5648
120	4.680	4.662	4.644	4.625	4.608	4.589	4.572	4.554	4.536	4.518
	0.5325	0.5603	0.5581	0.5559	0.5538	0.5516	0.5495	0.5473	0.5452	0.5431
130	4.502	4.484	4.468	4.450	4.434	4.417	4.400	4.384	4.368	4.352
	0.5411	0.5390	0.5370	0.5349	0.5329	0.5309	0.5289	0.5270	0.5250	0.5231
140	4.335	4.319	4.303	4.288	4.273	4.257	4.242	4.226	4.211	4.196
	0.5211	0.5192	0.5173	0.5154	0.5136	0.5117	0.5099	0.5080	0.5062	0.5044
150	4.181	4.166	4.152	4.137	4.122	4.108	4.093	4.079	4.065	4.051
	0.5026	0.5008	0.4991	0.4973	0.4956	0.4938	0.4921	0.4904	0.4887	0.4870
160	4.037									
	0.4854									

* Values from 0 to 100°API, American Petroleum Institute Tables. Values from 100 to 160°API calculated by The Lummus Co.

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

***** TEST PROBLEM - CRUDE DISTILLATION *****

TOTAL NO. OF COMPONENTS = 40
 TOTAL NO. OF THEORETICAL STAGES = 34
 TIPPING + ACCUMULATOR + CONDENSER = 26
 STRIPPER NO. 1 = 2
 STRIPPER NO. 2 = 2
 STRIPPER NO. 3 = 2
 STRIPPER NO. 4 = 2

CONDENSER PRESSURE = 22.40 PSIA
 ACCUMULATOR PRESSURE = 23.90 PSIA
 BOTTOM PRESSURE = 26.50 PSIA
 PRESSURE DROP ACROSS ACCUMULATOR = 1.00 PSIA
 REFERENCE PRESSURE OF K-VALUE = 22.40 PSIA
 FLASH PRESSURE = 23.20 PSIA
 FEED TEMPERATURE = 330.00 DEG.F

STRIPPER NO.	LIQUID DRAWN TRAY	VAPOR RETURN TRAY	STEAM RATE M/HR	T (F)	WITHDRAWN RATE MOLES/HR
1	6	5	44.40	680.00	465.82
2	12	11	22.20	680.00	293.84
3	17	15	44.40	680.00	571.20
4	21	20	11.10	680.00	43.73

*** MAIN COLUMN STEAM STRIPPER, RATE = 111.11 M/HR, TEMP = 680.00 DEG.F

INTER/REFLUX LINE NO.	DRAWN TRAY	RETURN TRAY	INT/COOL DUTY BTU/HR	WITHDRAWN RATE MOLES/HR
1	17	16	0.250+08	1150.50
2	8	7	0.200+08	2178.50

TRAY NO.	INITIAL TEMP DEG. F	INITIAL LIQ MOL/HR	INITIAL VAP MOL/HR	LIQUID/VAPOR RATIO	PRESSURE PSIA	THETA
1	160.00	1000.0000	470.0000	0.4700	23.90	1.00
2	220.00	2000.0000	900.0000	2.0000	24.90	1.00
3	240.00	2000.0000	900.0000	1.9500	24.97	1.00
4	260.00	2000.0000	900.0000	1.9000	25.04	1.00
5	280.00	2000.0000	900.0000	1.8500	25.11	1.00
6	300.00	1500.0000	800.0000	2.4000	25.18	1.00
7	320.00	4000.0000	3500.0000	0.8750	25.25	1.00
8	340.00	1300.0000	3000.0000	1.8689	25.32	1.00
9	360.00	1300.0000	3000.0000	1.8333	25.39	1.00
10	380.00	1300.0000	3200.0000	1.7778	25.46	1.00
11	400.00	1300.0000	3100.0000	1.7222	25.53	1.00
12	420.00	1500.0000	2900.0000	1.9333	25.60	1.00
13	440.00	1500.0000	2800.0000	1.7500	25.67	1.00
14	460.00	1500.0000	2700.0000	1.6875	25.72	1.00
15	480.00	1000.0000	2500.0000	2.6000	25.80	1.00
16	500.00	2400.0000	2500.0000	1.0417	25.87	1.00
17	520.00	300.0000	2400.0000	3.0000	25.94	1.00
18	540.00	500.0000	2300.0000	3.8333	26.01	1.00
19	560.00	400.0000	2200.0000	5.5000	26.08	1.00
20	580.00	400.0000	2100.0000	5.2500	26.15	1.00
21	600.00	400.0000	2000.0000	5.0000	26.22	1.00
22	620.00	400.0000	1900.0000	4.7500	26.29	1.00
23	640.00	200.0000	1800.0000	9.0000	26.36	1.00
24	660.00	500.0000	300.0000	0.6000	26.43	1.00
25	680.00	500.0000	300.0000	0.6000	26.50	1.00
26	230.00	500.0000	200.0000	0.3333	25.18	1.00
27	260.00	500.0000	150.0000	0.2500	25.25	1.00
28	400.00	400.0000	100.0000	0.2500	25.30	1.00
29	380.00	400.0000	60.0000	0.1500	25.67	1.00
30	500.00	500.0000	200.0000	0.3333	25.94	1.00
31	480.00	600.0000	150.0000	0.2500	26.01	1.00
32	580.00	100.0000	100.0000	1.0000	26.22	1.00
33	560.00	100.0000	60.0000	0.6000	26.29	1.00

***** SOLUTION OF TEST PROBLEM *****

TRAY NO.	FINAL TEMP DEG.F	LIQUID FLOW MOL/HR	VAPOR FLOW MOL/HR
0	120.00	523.4833	126.1513
1	172.90	2170.0092	1020.1393
2	228.45	2322.7129	3248.3466
3	248.10	2280.0959	3400.5503
4	262.83	2193.9577	3357.9333
5	278.18	2073.4069	3271.7951
6	297.19	1399.4917	3026.2602
7	319.32	4489.7447	2898.7491
8	337.43	2351.3425	3810.5021
9	355.64	2298.8003	3450.5999
10	369.42	2209.8183	3788.0577
11	381.87	2115.7189	3709.0757
12	394.79	1669.2578	3546.9132
13	409.09	1561.4733	3439.9552
14	423.14	1437.1541	3332.1707
15	438.77	1226.8481	3207.8516
16	463.03	2905.5530	2997.5455
17	500.83	579.6780	3402.7460
19	572.16	476.5553	2977.1754
19	607.48	407.3621	2774.0527
20	622.27	356.4372	2704.8595
21	630.45	248.2940	2635.7046
22	637.82	179.8576	2578.4714
23	640.27	80.2108	2510.0351
24	654.47	408.2796	162.9097
25	649.76	382.6859	136.7037
26	284.03	509.9795	124.9840
27	271.24	465.8200	88.5595
28	384.92	318.9163	68.0631
29	373.54	293.6400	47.4763
30	494.72	515.2579	123.0044
31	486.57	571.2000	88.4579
32	624.97	47.6242	18.2301
33	616.76	43.7800	14.9442

WATER FLOW (MOL/HR) - CONDENSER = 270.507
 - ACCUMULATOR = 57.593

COOLING DUTY (BTU/HR) - CONDENSER = 0.1437020+08
 - ACCUMULATOR = 0.3998780+08



COMPONENT FEED DATA *****

COMPONENT	FX (I)	VFC (I)	LFC (I)
1	0.97502928)+01	0.97528594)+01	0.74334130)-02
2	0.36031064)+02	0.35951099)+02	0.77954661)-01
3	0.51431812)+02	0.51286205)+02	0.14570389)+00
4	0.60520483)+02	0.60317620)+02	0.20085259)+00
5	0.15155188)+03	0.15104713)+03	0.50474699)+00
6	0.69555584)+02	0.69218132)+02	0.3474024)+00
7	0.69111132)+02	0.68738395)+02	0.37273745)+00
8	0.88330239)+02	0.87802099)+02	0.52819964)+00
9	0.63552145)+02	0.63133143)+02	0.41900155)+00
10	0.69532436)+02	0.69035200)+02	0.47891805)+00
11	0.79751050)+02	0.79119235)+02	0.63176351)+00
12	0.69453639)+02	0.68848119)+02	0.51051989)+00
13	0.84750963)+02	0.83925357)+02	0.83060114)+00
14	0.78308925)+02	0.77449352)+02	0.35956301)+00
15	0.86540095)+02	0.85471348)+02	0.10637471)+01
16	0.79641558)+02	0.78530115)+02	0.11114525)+01
17	0.76429077)+02	0.75218497)+02	0.12157970)+01
18	0.76432584)+02	0.75101608)+02	0.13809782)+01
19	0.67072073)+02	0.65685319)+02	0.13867537)+01
20	0.42535243)+02	0.41600753)+02	0.97753417)+00
21	0.60975435)+02	0.59417153)+02	0.15582769)+01
22	0.48029121)+02	0.46653977)+02	0.13701769)+01
23	0.46436146)+02	0.44982243)+02	0.14839032)+01
24	0.50197926)+02	0.48398235)+02	0.17925413)+01
25	0.36917104)+02	0.35427053)+02	0.14900510)+01
26	0.48018593)+02	0.45830336)+02	0.21882121)+01
27	0.84367773)+02	0.81377510)+02	0.34931573)+01
28	0.66450548)+02	0.62021995)+02	0.44285524)+01
29	0.92269980)+02	0.83891299)+02	0.83786313)+01
30	0.96172466)+02	0.83058033)+02	0.13114373)+02
31	0.80449697)+02	0.63368176)+02	0.17141521)+02
32	0.73633703)+02	0.49760805)+02	0.23927897)+02
33	0.67831042)+02	0.36843310)+02	0.30987732)+02
34	0.54747801)+02	0.19941336)+02	0.34806215)+02
35	0.61907773)+02	0.12846548)+02	0.49061225)+02
36	0.52597067)+02	0.45418306)+01	0.48055215)+02
37	0.49604750)+02	0.99875525)+00	0.43605993)+02
38	0.34904631)+02	0.61642561)-01	0.34843033)+02
39	0.14032314)+02	0.85728373)-03	0.14031447)+02
40	0.11111111)+03	0.11087213)+03	0.23893379)+00
TOTAL	0.26017533)+04	0.22474735)+04	0.33427477)+03

07404=4T

V(1)

V(2)

V(3)

V(4)

V(5)

V(6)

1	J.976J2779J+J1	J.98755+J70+J1	0.9795J1150+01	0.979252440+01	J.979115000+J1	0.978150360+01
2	J.35J23355J+J2	J.57595+J10+02	0.354707120+02	0.364024520+02	0.362765140+02	0.36265440+02
3	J.5142J579J+J2	J.583171270+J2	0.552479230+02	0.528172330+02	J.526752470+J2	0.522639000+02
4	J.6J47+551J+J2	J.624427790+J2	0.656+35850+02	J.644791850+02	0.658692590+02	J.627352600+02
5	J.13J37825J+J3	J.2+60575J+J3	0.170+35930+02	0.152001450+02	0.14766860+02	0.147646830+02
6	J.6334J337J+J2	J.152908150+J3	J.101539200+J3	J.854951530+02	0.807384220+02	J.767504040+02
7	J.57929571J+J2	0.181686530+J3	0.1190J5900+03	J.932706910+02	0.846303050+02	J.787542030+02
8	J.8555J0+5J+J2	J.302831920+J3	0.29708+060+03	0.147572940+03	0.122080450+03	0.10774020+03
9	J.60072982J+J2	0.262473010+J3	0.216810770+03	0.148085240+03	0.109392180+03	0.873599170+02
10	J.63J4054J+J2	0.382707190+J3	0.342012140+03	0.2450422+0+03	0.166928130+03	0.117286630+03
11	J.63492723J+J2	0.523041720+03	0.5355+77+0+02	0.478513850+03	0.335858970+03	0.269970490+02
12	J.34689+92J+J2	0.597865340+J3	0.533+82570+03	0.597705520+03	0.492511160+03	0.322746250+03
13	J.1247354+J+J2	0.203631+30+J3	0.405793250+03	0.551799550+03	0.587502690+03	0.475146910+03
14	J.13413174J+01	0.45779+520+02	0.121724730+03	0.227253750+03	0.327515730+03	0.351949750+03
15	J.25631031J+J0	0.909088300+J1	0.555757310+02	0.940630570+02	0.187490640+03	0.274766450+03
16	J.26705256J-J1	J.14201+100+J1	0.311697700+01	0.501122340+02	0.840113340+02	0.159898640+03
17	0.24227906J-02	0.201465230+00	0.1581350J+01	0.892075090+01	0.351598720+02	J.938806520+02
18	J.169J565J-03	J.220484500-J1	0.270327930+00	0.207345710+01	0.115900160+02	0.456015730+02
19	J.52210+600J-05	0.12665+530J-02	J.2539+365J-01	J.259475090+00	0.206957+00+01	0.114504040+02
20	J.26959382J-06	0.79153+420J-04	0.192754870-02	J.284593070-01	0.297232170+00	0.213023110+01
21	J.22058834J-07	0.924273300-05	0.5J5514820-03	0.595594500-02	0.816366530-01	0.760056700+00
22	J.8587+39J-09	J.515025720-J5	0.230210500-J4	0.597742440-03	0.107921760-01	J.130937350+J0
23	0.3453041J-10	0.297857550-07	0.130794510-05	0.627205230-04	0.149656740-02	0.237502540-01
24	J.124+1145J-11	0.154701500-J3	0.126089350-J6	J.596425680-05	J.188923710-03	0.593943420-02
25	0.23333298J-13	0.430695730-J1	0.439505500-08	0.307596900-06	0.130072270-04	0.3583132+0-03
26	0.64395259J-15	0.171974590-11	0.870262850-09	0.230909800-07	0.151233100-05	0.48055230-04
27	J.38909011J-17	0.17503J30-13	0.430169400-11	0.561200780-09	0.479024620-07	0.259509820-05
28	J.52349004J-20	0.293384120-15	J.131992190-13	0.29979+590-11	0.435494570-09	0.3930839+0-07
29	0.12843405J-24	0.3438+5+10-20	0.558520520-17	0.191678020-14	0.614037320-12	0.118046710-09
30	0.37713136J-31	0.111955J10-25	J.+09+9514J-22	J.664860980-19	0.627489930-16	0.337510670-13
31	0.60278538J-38	0.467009350-32	0.577955240-28	0.395535370-24	0.126072220-20	0.216549140-17
32	J.30398920J-45	0.131672+4J-33	0.500523590-34	0.21383720-29	0.129604860-25	0.714853230-22
33	J.28549300J-55	0.491853250-40	J.11406250-40	J.919045700-36	0.365730050-31	0.713610540-27
34	0.34035155J-65	J.437459990-57	0.5+7222130-51	J.2+5067880-45	0.542332760-40	0.575391360-25
35	J.00000000J+00	0.00000000J+00	0.00000000J+00	0.014659320-56	0.100517710-49	0.571602940-44
36	J.00000000J+00	0.00000000J+00	J.00000000J+00	J.00000000J+00	0.00000000J+00	0.155701620-55
37	J.00000000J+00	J.00000000J+00	J.00000000J+00	J.00000000J+00	0.00000000J+00	0.00000000J+00
38	J.00000000J+00	0.00000000J+00	0.00000000J+00	0.00000000J+00	0.00000000J+00	0.00000000J+00
39	J.00000000J+00	0.00000000J+00	J.00000000J+00	J.00000000J+00	0.00000000J+00	0.00000000J+00
40	J.27357900J+35	J.5510777+0+J3	J.554796+00+03	J.334422340+03	0.334225850+03	0.292186450+02

TOTAL

0.10201420+04

0.32485+920+24

0.55+005527+04

J.335793510+04

J.327179680+04

J.302626190+04

COMPONENT	V(7)	V(8)	V(9)	V(10)	V(11)	V(12)
1	0.9731+9000+01	0.980407270+01	0.9783203+0+01	0.978708080+0:	0.978650400+01	0.97873790+01
2	0.362553510+02	0.364952530+02	0.363133250+02	0.363031830+02	0.362969230+02	0.362472400+02
3	0.521379180+02	0.529475190+02	0.523285710+02	0.522451850+02	0.522037500+02	0.520477800+02
4	0.5239+2100+02	0.641411+70+02	0.5257+0200+02	0.522367920+02	0.521422350+02	0.517900960+02
5	0.139573+30+03	0.1+5423510+03	0.13993+550+03	0.138477330+03	0.137772520+03	0.136411080+03
6	0.7503+630+02	0.79084+530+02	0.752533520+02	0.741539630+02	0.736329700+02	0.727231190+02
7	0.762335700+02	0.818785250+02	0.753258830+02	0.747799510+02	0.740701570+02	0.729532510+02
8	0.101389190+03	0.110705130+03	0.101016570+03	0.979405370+02	0.965573350+02	0.946314870+02
9	0.773376050+02	0.855223300+02	0.759739900+02	0.75803380+02	0.710911710+02	0.693335450+02
10	0.329233950+02	0.1024079+0+03	0.377259950+02	0.321094490+02	0.796972050+02	0.77577.250+02
11	0.134578550+03	0.142383560+03	0.111724730+03	0.996487630+02	0.948631540+02	0.910554390+02
12	0.180760860+03	0.181721520+03	0.121777000+03	0.968108940+02	0.875566380+02	0.823834430+02
13	0.301744300+03	0.323385330+03	0.204897210+03	0.143514140+03	0.118671480+03	0.106687270+03
14	0.2913336+0+03	0.36081+350+03	0.2517387+7+03	0.170913100+03	0.129650460+03	0.108715790+03
15	0.308461010+03	0.445365570+03	0.365111900+03	0.259631670+03	0.186537350+03	0.142764850+03
16	0.260841210+03	0.+37523330+03	0.438811320+03	0.347519410+03	0.252024030+03	0.177942730+03
17	0.208740570+03	0.402743550+03	0.503843520+03	0.475128600+03	0.379398830+03	0.267376910+03
18	0.132948800+03	0.291343250+03	0.467136570+03	0.546384120+03	0.519841280+03	0.410647140+03
19	0.462937830+02	0.113589750+03	0.237631750+03	0.355889460+03	0.425446450+03	0.411403080+03
20	0.110307030+02	0.291883350+02	0.752935630+02	0.137667740+03	0.199459660+03	0.231782710+03
21	0.505948800+01	0.143023920+02	0.458357800+02	0.103210160+03	0.183282800+03	0.259604980+03
22	0.112332720+01	0.350733570+01	0.134755310+02	0.376934270+02	0.626964870+02	0.144024050+03
23	0.263543190+00	0.331663340+00	0.418372220+01	0.146193330+02	0.398726420+02	0.859180310+02
24	0.567364110-01	0.167403270+00	0.119233300+01	0.523380350+01	0.178422950+02	0.478180410+02
25	0.674362350-02	0.231403300-01	0.1372+5620+00	0.103853550+01	0.4+4848540+01	0.1+9000990+02
26	0.11880250-02	0.421858440-02	0.+3635+920-01	0.307827730+00	0.166490890+01	0.700373540+01
27	0.93222770-04	0.34+337+10-03	0.500310200-02	0.489280470-01	0.364061930+00	0.299078020+01
28	0.229565970-05	0.384344240-05	0.149577820-03	0.297349480-02	0.334493980-01	0.236927370+00
29	0.141079770-07	0.571393940-07	0.245234920-05	0.679993520-04	0.139080550-02	0.213838170-01
30	0.106271240-10	0.454860300-10	0.+051238+038	0.296160700-06	0.135535850-04	0.456208680-02
31	0.205027390-14	0.921821350-14	0.255416850-11	0.424125940-09	0.492676480-07	0.411475800-05
32	0.207358260-18	0.969937320-18	0.751219450-15	0.346577180-12	0.107802300-09	0.236209180-07
33	0.687018830-23	0.33736+920-22	0.778399500-19	0.996453830-16	0.843101590-13	0.488941250-10
34	0.290825270-30	0.150183320-29	0.153536+0-25	0.937344800-22	0.341270940-18	0.821671390-15
35	0.159951240-38	0.849569990-33	0.438149740-33	0.147289210-28	0.266324490-24	0.306394500-20
36	0.300850020-49	0.156008000-43	0.72289+3+0-43	0.165704160-37	0.224480210-32	0.130135530-27
37	0.000000000+00	0.000000000+00	0.131325970-56	0.629428330-50	0.121735310-43	0.139795230-37
38	0.000000000+00	0.000000000+00	0.000000000+00	0.000000000+00	0.412412620-59	0.951676330-52
39	0.000000000+00	0.000000000+00	0.000000000+00	0.000000000+00	0.000000000+00	0.000000000+00
40	0.291757130+03	0.293704750+03	0.292236750+03	0.292134330+03	0.292072980+03	0.271153130+03
TOTAL	0.239375190+04	0.381050920+04	0.335050030+04	0.378605770+04	0.370907950+04	0.354691320+04

COMPONENT

V(13)

V(14)

V(15)

V(16)

V(17)

V(18)

1	0.973152170+01	0.979095130+01	0.978001980+01	0.977789190+01	0.978037080+01	0.976971420+01
2	0.352455220+02	0.352363510+02	0.352298000+02	0.352039770+02	0.352313590+02	0.351291790+02
3	0.520223830+02	0.519878520+02	0.519435230+02	0.518790810+02	0.519556090+02	0.516515300+02
4	0.615360630+02	0.615927200+02	0.614375130+02	0.612315750+02	0.614946310+02	0.608772540+02
5	0.135961310+03	0.135514910+03	0.135078930+03	0.134474950+03	0.135088500+03	0.132341710+03
6	0.723955810+02	0.720819150+02	0.717301530+02	0.713731630+02	0.717842610+02	0.703101510+02
7	0.725131780+02	0.721152370+02	0.717336830+02	0.712322320+02	0.717329740+02	0.699673100+02
8	0.933755960+02	0.931607560+02	0.924900550+02	0.916539840+02	0.924794680+02	0.896405590+02
9	0.635137740+02	0.67824350+02	0.671953360+02	0.664247160+02	0.671582460+02	0.645578510+02
10	0.750312360+02	0.75098320+02	0.742285970+02	0.731904850+02	0.741501520+02	0.709145520+02
11	0.890978280+02	0.875695290+02	0.852561300+02	0.847451590+02	0.860891350+02	0.815982960+02
12	0.797678100+02	0.779024870+02	0.763575620+02	0.74670180+02	0.761088760+02	0.713470010+02
13	0.101157560+03	0.977527200+02	0.951714070+02	0.924555840+02	0.946161360+02	0.874869770+02
14	0.930322160+02	0.938993270+02	0.934106470+02	0.930312350+02	0.894912600+02	0.813520280+02
15	0.120555390+03	0.110036570+03	0.103845770+03	0.985705340+02	0.101908920+03	0.906021630+02
16	0.133683660+03	0.112282330+03	0.101447100+03	0.939021840+02	0.975532420+02	0.842651740+02
17	0.180638860+03	0.132662070+03	0.108801670+03	0.952494230+02	0.989210120+02	0.920539520+02
18	0.282907350+03	0.189703050+03	0.135703740+03	0.106008790+03	0.108096910+03	0.839255080+02
19	0.333535340+03	0.238449730+03	0.162541350+03	0.112137020+03	0.110141780+03	0.763475050+02
20	0.223715830+03	0.180874230+03	0.129552210+03	0.856929870+02	0.823448670+02	0.507042140+02
21	0.304309150+03	0.286504230+03	0.225376920+03	0.150730350+03	0.144845000+03	0.777870480+02
22	0.207045350+03	0.230405500+03	0.205375510+03	0.145149300+03	0.143737350+03	0.677622060+02
23	0.152386260+03	0.202427050+03	0.209455460+03	0.162587830+03	0.171551830+03	0.744304930+02
24	0.105131690+03	0.163084330+03	0.20493550+03	0.181419460+03	0.210096160+03	0.90979900+02
25	0.407375350+02	0.730852010+02	0.115346510+03	0.119653010+03	0.155294370+03	0.728925000+02
26	0.239722710+02	0.567798250+02	0.100256320+03	0.124433800+03	0.183008160+03	0.987118180+02
27	0.970010200+01	0.303434000+02	0.702041850+02	0.113112460+03	0.197506090+03	0.134473420+02
28	0.197111110+01	0.885873150+01	0.293008470+02	0.669149020+02	0.143817610+03	0.135120240+03
29	0.259399000+00	0.199084000+01	0.111544930+02	0.426730420+02	0.119059470+03	0.179274240+03
30	0.118030550+01	0.183519700+00	0.216212690+01	0.165690280+02	0.605927100+02	0.171247420+03
31	0.259534960+03	0.970939740+02	0.257717800+00	0.446676480+01	0.202850300+02	0.119795490+03
32	0.382341130+03	0.358679420+03	0.233337740+01	0.973762960+00	0.513361140+01	0.668163420+02
33	0.204040090+07	0.477732700+05	0.759052390+03	0.747889670+01	0.437860580+00	0.122206730+02
34	0.137061440+11	0.123032150+08	0.720456070+06	0.250396710+03	0.166458610+02	0.138953000+00
35	0.235095790+16	0.925060550+13	0.226755950+09	0.313397210+06	0.236524670+05	0.645831300+03
36	0.977424630+23	0.246559330+13	0.370856440+14	0.291551640+10	0.256698210+09	0.309296780+06
37	0.965538850+32	0.301464170+26	0.512285170+21	0.420708560+16	0.446405370+15	0.409087700+11
38	0.133670060+44	0.839473370+38	0.279327900+31	0.431296590+25	0.511011830+24	0.733875020+19
39	0.388347550+59	0.220429180+51	0.745603020+44	0.133046150+36	0.125290280+35	0.313520780+29
40	0.271012290+03	0.270949390+03	0.270871530+02	0.270708030+03	0.230252490+03	0.229105540+03
TOTAL	0.343995540+04	0.333217140+04	0.320735270+04	0.299754700+04	0.340274810+04	0.297717620+04

COMPONENT

V(19)

V(20)

V(21)

V(22)

V(23)

V(24)

1	0.97500090+01	0.976742120+01	0.976576330+01	0.976433530+01	0.976369870+01	0.976458240-02
2	0.361142710+02	0.361000230+02	0.360900200+02	0.360800780+02	0.360679910+02	0.360777020-01
3	0.515903210+02	0.515733+20+02	0.515631570+02	0.5152+3250+02	0.514998280+02	0.51764+55+0+01
4	0.607615120+02	0.607277+30+02	0.606700630+02	0.606493410+02	0.606146280+02	0.604127390+00
5	0.132411930+03	0.1322291720+03	0.132124150+03	0.132042990+03	0.131736670+03	0.130920970+00
6	0.7002312+02	0.6997430130+02	0.6998+8170+02	0.697930030+02	0.697308280+02	0.427015730+00
7	0.69519940+02	0.695251590+02	0.69451000+02	0.693533350+02	0.692395960+02	0.45059+180+00
8	0.39077870+02	0.38928+300+02	0.387559250+02	0.38683630+02	0.385342870+02	0.637998140+00
9	0.64167020+02	0.640320000+02	0.639912420+02	0.638336670+02	0.637538290+02	0.585877910+00
10	0.702701210+02	0.701083370+02	0.69997854+02	0.698681340+02	0.697722510+02	0.600741300+00
11	0.807023770+02	0.804857870+02	0.802911270+02	0.801750900+02	0.800536550+02	0.750732180+00
12	0.7099+500+02	0.7017209+02	0.699717370+02	0.699863730+02	0.697494670+02	0.730849000+00
13	0.8095+500+02	0.805733730+02	0.804558550+02	0.802134200+02	0.801496680+02	0.970095790+00
14	0.706036020+02	0.703257050+02	0.700327700+02	0.703825970+02	0.707113350+02	0.101908400+01
15	0.802333+30+02	0.80123000+02	0.80000000+02	0.802497870+02	0.800340980+02	0.125835270+01
16	0.80514100+02	0.809753350+02	0.805704470+02	0.802745770+02	0.801468520+02	0.129703560+01
17	0.78543290+02	0.77894+730+02	0.77491900+02	0.772203100+02	0.789675170+02	0.139677340+01
18	0.70007170+02	0.781702170+02	0.776+3300+02	0.773738390+02	0.770791510+02	0.157017140+01
19	0.69773150+02	0.68784+50+02	0.682342670+02	0.679513840+02	0.676480660+02	0.154720320+01
20	0.44622390+02	0.438029340+02	0.434094620+02	0.431942470+02	0.429760140+02	0.107158920+01
21	0.645+504+02	0.629372+20+02	0.622594700+02	0.6192+600+02	0.615689710+02	0.167211110+01
22	0.5160+740+02	0.497792010+02	0.491521780+02	0.488402260+02	0.485201480+02	0.143300910+01
23	0.51012230+02	0.48400350+02	0.476568010+02	0.473137680+02	0.469584010+02	0.150317430+01
24	0.56550570+02	0.520072930+02	0.51009000+02	0.511814250+02	0.507389700+02	0.176000910+01
25	0.429335530+02	0.389691210+02	0.380303090+02	0.376834830+02	0.372318260+02	0.130560850+01
26	0.574922310+02	0.511125550+02	0.496595020+02	0.490795030+02	0.485100150+02	0.174837010+01
27	0.805512240+02	0.699771730+02	0.69431250+02	0.683884030+02	0.684408500+02	0.246728710+01
28	0.86938650+02	0.73260100+02	0.6959+1590+02	0.680832100+02	0.668073650+02	0.321575300+01
29	0.131005150+03	0.1056+320+03	0.101101390+02	0.1046032770+02	0.919217610+02	0.489242350+01
30	0.158+05750+03	0.124844330+03	0.107237550+03	0.109051540+02	0.938657370+02	0.538166730+01
31	0.159017230+03	0.135403550+03	0.106600930+03	0.107366010+02	0.766542070+02	0.441981600+01
32	0.140379+03	0.105227230+03	0.10174970+03	0.107092260+02	0.757519180+02	0.378258420+01
33	0.45773530+02	0.385270010+02	0.109761790+03	0.109172440+03	0.301490600+02	0.317286520+01
34	0.12043500+01	0.486530010+01	0.134907170+02	0.231762490+02	0.368754570+02	0.163408180+01
35	0.14+393930-01	0.14218+5+0+01	0.932422000+00	0.454007230+01	0.126261300+02	0.890650100+00
36	0.23701340-04	0.729494720-03	0.144732010-01	0.209185990+00	0.162903370+01	0.270951670+00
37	0.13039050-08	0.28946670-05	0.23813710-04	0.204905160-02	0.757734970-01	0.547596330-01
38	0.427+53100-15	0.300807390-12	0.104083+00-08	0.896509710-06	0.395382800-03	0.229244400-02
39	0.427366430-2+	0.220093320-17	0.7112180+0-15	0.165111000-10	0.199404440-06	0.467029320-04
40	0.22907750+03	0.223930550+03	0.218221590+03	0.218151560+03	0.218030350+03	0.107095270+03
TOTAL	0.277+00+20+0+	0.270480120+0+	0.250700+0+04	0.2578+7360+0+	0.251003580+04	0.162909+00+03

COMPONENT

V(25)

V(26)

V(27)

V(28)

V(29)

V(30)

1	0.111420570-03	0.327867550-02	0.156128170-03	0.433704520-02	0.915210820-04	0.900248010-02
2	0.341592550-02	0.879411350-01	0.452589380-02	0.435555550-01	0.238793210-02	0.954487210-01
3	0.738607310-02	0.291011930+00	0.352784130-01	0.118835450+00	0.119248560-01	0.207842170+00
4	0.126370090-01	0.681959140+00	0.140131030+00	0.230977290+00	0.359771950-01	0.333849320+00
5	0.515335740-01	0.252559570+01	0.781452090+00	0.302524840+00	0.133007700+00	0.105552170+01
6	0.229333950-01	0.160947790+01	0.559371790+00	0.507340960+00	0.133045940+00	0.668150750+00
7	0.370143470-01	0.187122410+01	0.736003530+00	0.584538200+00	0.171659390+00	0.754597560+00
8	0.570471570-01	0.290404300+01	0.127972510+01	0.388311150+00	0.295748820+00	0.172307750+01
9	0.498944250-01	0.256632310+01	0.122822250+01	0.732712110+00	0.270534520+00	0.919479740+00
10	0.633779590-01	0.363645590+01	0.134127550+01	0.391945210+00	0.3559106170+00	0.111525390+01
11	0.831905990-01	0.530875990+01	0.352395190+01	0.114557200+01	0.491981980+00	0.143187470+01
12	0.930114590-01	0.107997050+02	0.599133510+01	0.11507550+01	0.312491370+00	0.139363380+01
13	0.133352010+00	0.162261000+02	0.927754750+01	0.153445940+01	0.748306510+00	0.189919860+01
14	0.150734890+00	0.121642000+02	0.710157700+01	0.154225200+01	0.842769650+00	0.195794840+01
15	0.213435250+00	0.954747730+01	0.554829710+01	0.224107150+01	0.120047900+01	0.241438040+01
16	0.242397950+00	0.597649230+01	0.351842270+01	0.257625540+01	0.159611730+01	0.248381510+01
17	0.289320500+00	0.342745410+01	0.204552650+01	0.441652420+01	0.252145940+01	0.268477030+01
18	0.359791570+00	0.157224530+01	0.936504810+00	0.589002950+01	0.402187160+01	0.297970800+01
19	0.392189200+00	0.292077210+00	0.232437950+00	0.597907750+01	0.414318300+01	0.330437800+01
20	0.292890350+00	0.725163700-01	0.428004130-01	0.395374720+01	0.236990940+01	0.254233220+01
21	0.432505430+00	0.257119910-01	0.150934950-01	0.444587410+01	0.268469440+01	0.458151040+01
22	0.454475990+00	0.445060950-02	0.256778330-02	0.247273010+01	0.150133600+01	0.453884830+01
23	0.513343170+00	0.752801390-03	0.459515200-03	0.147703000+01	0.900134730+00	0.562649980+01
24	0.644577540+00	0.130575490-03	0.751754770-04	0.322328330+00	0.502251150+00	0.698546210+01
25	0.547331470+00	0.117884320-04	0.573595140-05	0.256098690+00	0.156550970+00	0.521832860+01
26	0.813088540+00	0.156895990-05	0.389532730-06	0.120206400+00	0.734507240-01	0.620077380+01
27	0.131172210+01	0.857491490-07	0.459319450-07	0.357303350-01	0.218178160-01	0.674653520+01
28	0.162542310+01	0.124833950-08	0.588016750-09	0.488487040-02	0.296373210-02	0.494440720+01
29	0.273307730+01	0.365134240-11	0.195734810-11	0.350585490-03	0.216483280-03	0.411054260+01
30	0.349470830+01	0.100349500-14	0.515939790-15	0.758117790-05	0.447434190-05	0.279234210+01
31	0.317159010+01	0.518605730-19	0.334357210-19	0.572744890-07	0.339443650-07	0.697853000+00
32	0.239276270+01	0.198225720-23	0.945412130-24	0.380250870-09	0.216153480-09	0.175463030+00
33	0.231135820+01	0.139300730-28	0.852101790-29	0.771062200-12	0.427501940-12	0.148449260-01
34	0.131821660+01	0.148753210-36	0.652573070-37	0.125428440-16	0.675659310-17	0.555851810-04
35	0.721319240+00	0.150489250-45	0.701532930-46	0.455837680-22	0.236212310-22	0.775568100-07
36	0.218774550+00	0.453611320-57	0.254001130-57	0.266340440-29	0.132738530-29	0.822352710-11
37	0.439044300-01	0.000000000+00	0.000000000+00	0.192144790-39	0.925824760-40	0.139047440-16
38	0.262529390-02	0.000000000+00	0.000000000+00	0.131694020-53	0.652175230-54	0.156493420-25
39	0.375738570-04	0.000000000+00	0.000000000+00	0.000000000+00	0.000000000+00	0.396529410-27
40	0.110333540+03	0.478503790+02	0.435023170+02	0.208205240+02	0.217247860+02	0.414435650+02

TOTAL

0.135703350+03

0.124983730+03

0.335094800+02

0.330630170+02

0.474762990+02

0.123004870+03

COMPONENT

	V(31)	V(32)	V(33)	L(1)	L(2)	L(3)
1	0.21022836)-J3	0.941789510-03	0.121135330-04	0.116362760+00	0.357336140-01	0.322465060-01
2	0.58039212)-02	0.102409740-01	0.57813152)-03	0.162957560+01	0.4406+6100+00	0.372536930+00
3	0.19479660)-01	0.190033200-01	0.903952040-02	0.689655070+01	0.192034490+01	0.139665440+01
4	0.413243760)-01	0.264206450-01	0.137493700-02	0.220484130+02	0.520412490+01	0.403+62410+01
5	0.183580190)+00	0.805181070-01	0.5167+7100-02	0.115781440+03	0.394698440+02	0.211231930+02
6	0.131545490)+00	0.459547000-01	0.394655500-02	0.340672170+02	0.326982590+02	0.166552140+02
7	0.164613620)+00	0.509212070-01	0.454396550-02	0.113757060+03	0.510773280+02	0.253411200+02
8	0.275104800)+00	0.728369000-01	0.736369100-02	0.217272800+03	0.121525020+03	0.618133900+02
9	0.249473220)+00	0.580659930-01	0.544578330-02	0.222405030+03	0.156727790+03	0.880122560+02
10	0.325935700)+00	0.692954100-01	0.331524970-02	0.319663140+03	0.279037990+03	0.179993190+03
11	0.456021830)+00	0.873363230-01	0.115216850-01	0.160149000+03	0.522155020+03	0.415026130+03
12	0.430915850)+00	0.848741330-01	0.210955300-01	0.363174450+03	0.548793080+03	0.563017030+03
13	0.707700820)+00	0.115363380)+00	0.132172550-01	0.191157940+03	0.393319700+03	0.539326060+03
14	0.785614120)+00	0.119131750)+00	0.207236510-01	0.415331470+02	0.119893460+03	0.225412430+03
15	0.103926820)+01	0.147807230+00	0.232757760-01	0.383407710+01	0.257189200+02	0.938062480+02
16	0.114215060)+01	0.153122560+00	0.325044710-01	0.139373470+01	0.809057080+01	0.300353270+02
17	0.131213660)+01	0.165800110+00	0.339316850-01	0.199040440+00	0.167892810+01	0.892830810+01
18	0.160137570)+01	0.137440510+00	0.197790250-01	0.218794030-01	0.270658920+00	0.207326810+01
19	0.179552320)+01	0.185687030+00	0.534875760-01	0.128032480-02	0.233881440-01	0.259464860+00
20	0.142842830)+01	0.129051110+00	0.400789010-01	0.788840460-04	0.193727930-02	0.234595330-01
21	0.265245870)+01	0.201918230+00	0.675256260-01	0.922657410-05	0.305292760-03	0.595392290-02
22	0.275740530)+01	0.173359230+00	0.523227420-01	0.514169980-06	0.230210020-04	0.597741590-03
23	0.342470530)+01	0.182199530+00	0.7025+3000-01	0.297513750-07	0.180791060-05	0.627207890-04
24	0.433625910)+01	0.212944700+00	0.378707390-01	0.154577150-08	0.128088120-06	0.596423750-05
25	0.329493770)+01	0.168603630+00	0.742234270-01	0.430457390-10	0.489362970-08	0.307598800-06
26	0.397159060)+01	0.234321230+00	0.109939340+00	0.171909200-11	0.270202210-09	0.230909870-07
27	0.438736230)+01	0.344325350+00	0.174012440+00	0.175047170-13	0.430169010-11	0.561200730-09
28	0.325984750)+01	0.385034810+00	0.212030610+00	0.298351270-16	0.131992150-13	0.299794590-11
29	0.274093100)+01	0.590192+70+00	0.359600070+00	0.343833560-20	0.368520610-17	0.191678020-14
30	0.146245450)+01	0.688519080+00	0.162518940+00	0.111963030-25	0.409496140-22	0.664860980-19
31	0.466366380)+00	0.709058020+00	0.510890030+00	0.467003750-32	0.577933240-28	0.395585370-24
32	0.116578510)+00	0.97111+730+00	0.727323320+00	0.111672410-38	0.600623690-34	0.121388720-29
33	0.975898650)-02	0.741362010+00	0.564783130+00	0.491863220-46	0.114066260-40	0.919046700-36
34	0.358160870)-04	0.905591520-01	0.690250490-01	0.437459390-57	0.547222880-51	0.245567880-45
35	0.487653280)-07	0.619793830-02	0.467566330-02	0.000000000+00	0.000000000+00	0.000000000+00
36	0.500977830)-11	0.950448370-04	0.705230840-04	0.000000000+00	0.000000000+00	0.000000000+00
37	0.81500290)-17	0.186829410-06	0.136004160-06	0.000000000+00	0.000000000+00	0.000000000+00
38	0.896220160)-26	0.673465060-11	0.144523670-11	0.000000000+00	0.000000000+00	0.000000000+00
39	0.237859200)-37	0.452930100-17	0.339207130-17	0.000000000+00	0.000000000+00	0.000000000+00
40	0.434328110)+02	0.107188470+02	0.110425800+02	0.000000000+00	0.371866260+01	0.334460300+01
TOTAL	0.884578710)+02	0.182302200+02	0.1199+11700+02	0.217050840+04	0.232271190+04	0.228000430+04

COMPONENT

L (4)

L (5)

L (6)

L (7)

L (8)

L (9)

1	0.30372110)-01	0.295095230)-01	0.212141130)-01	0.702599470)-01	0.279215130)-01	0.267939230)-01
2	0.34665331)+00	0.323220190)+00	0.225136110)+00	0.731970800)+00	0.288110630)+00	0.272967940)+00
3	0.125566370)+01	0.113423370)+01	0.751153210)+00	0.255629920)+01	0.901821420)+00	0.812435450)+00
4	0.34246784)+01	0.297066+00+01	0.139255730)+01	0.555971850)+01	0.207246730)+01	0.178523960)+01
5	0.161086100)+02	0.132962110)+02	0.307000500)+01	0.227549650)+02	0.845112740)+01	0.697389650)+01
6	0.118774330)+02	0.951895590)+01	0.564749130)+01	0.156509200)+02	0.582174690)+01	0.471735240)+01
7	0.167007350)+02	0.127253570)+02	0.751903930)+01	0.198285320)+02	0.741035730)+01	0.586441950)+01
8	0.365214020)+02	0.250856210)+02	0.1347+0000)+02	0.349284450)+02	0.131014720)+02	0.100254430)+02
9	0.493191950)+02	0.293532530)+02	0.1+3056090)+02	0.342700230)+02	0.228869920)+02	0.948334000)+01
10	0.103534070)+03	0.573770350)+02	0.2+1039370)+02	0.511042360)+02	0.189065370)+02	0.132849000)+02
11	0.272366250)+03	0.153235530)+03	0.550219930)+02	0.045559750)+02	0.331580860)+02	0.210921160)+02
12	0.457321670)+03	0.293853500)+03	0.112421730)+03	0.152664110)+03	0.538389940)+02	0.238719890)+02
13	0.575029140)+03	0.478401570)+03	0.219715390)+03	0.355191290)+03	0.122868210)+03	0.614851330)+02
14	0.32557+01)+03	0.362272530)+03	0.217315110)+03	0.450526130)+03	0.177265210)+03	0.962895820)+02
15	0.137233330)+03	0.284057120)+03	0.228527530)+03	0.529647710)+03	0.285178470)+03	0.179698240)+03
16	0.839349230)+02	0.175775720)+03	0.1+1326440)+03	0.709339470)+03	0.367866550)+03	0.278504540)+03
17	0.351574500)+02	0.102305530)+03	0.152589830)+03	0.761379480)+03	0.447695830)+03	0.489779100)+03
18	0.115893470)+02	0.471735500)+02	0.957+77220)+02	0.654423820)+03	0.430955400)+03	0.510182950)+03
19	0.206956780)+01	0.118425280)+02	0.335765+90)+02	0.309300360)+03	0.224964520)+03	0.343172220)+03
20	0.297231900)+00	0.220279720)+01	0.798931670)+01	0.930775120)+02	0.722466120)+02	0.134620700)+02
21	0.816366310)-01	0.785753510)+00	0.355728490)+01	0.540397470)+02	0.444035770)+02	0.101807360)+03
22	0.107921750)-01	0.135337950)+00	0.811065330)+00	0.152508410)+02	0.131633180)+02	0.373811640)+02
23	0.149556730)-02	0.245450550)-01	0.190115230)+00	0.556538500)+01	0.411028820)+01	0.145459040)+02
24	0.188923700)-03	0.407000760)-02	0.409347380)-01	0.126132950)+01	0.117624140)+01	0.521795190)+01
25	0.130972270)-04	0.379101720)-03	0.433500450)-02	0.192990780)+00	0.135560500)+00	0.103675040)+01
26	0.131233100)-05	0.495347380)-04	0.355584970)-03	0.440523230)-01	0.433530140)-01	0.307505260)+00
27	0.479024650)-07	0.257884790)-05	0.571052150)-04	0.492935890)-02	0.457698620)-02	0.489019300)-01
28	0.43549+570)-09	0.405567450)-07	0.135134040)-05	0.192325280)-03	0.198734100)-03	0.237785110)-02
29	0.614037320)-12	0.121693050)-09	0.101471030)-07	0.232187310)-05	0.244859040)-05	0.679953930)-04
30	0.627489930)-15	0.347345500)-13	0.754376870)-11	0.434907230)-08	0.464825500)-08	0.296157720)-06
31	0.126072220)-20	0.222735200)-17	0.147450520)-14	0.237452590)-11	0.255359280)-11	0.424125360)-09
32	0.129604800)-25	0.734675500)-22	0.149500500)-18	0.706121230)-15	0.761161090)-15	0.346577120)-12
33	0.365730950)-31	0.732540510)-27	0.474105100)-23	0.721944450)-19	0.778880310)-19	0.996453810)-16
34	0.542332750)-40	0.591267200)-35	0.209162150)-30	0.151574970)-25	0.163585620)-25	0.937544800)-22
35	0.100517620)-49	0.585711360)-44	0.115037230)-38	0.461338460)-33	0.498148290)-33	0.1+7289210)-28
36	0.000000000)+00	0.000000000)+00	0.216571760)-49	0.669757230)-43	0.722894260)-43	0.165704160)-37
37	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.629437940)-50
38	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00
39	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00	0.000000000)+00
40	0.314815270)+01	0.295965650)+01	0.132703390)+01	0.592032000)+01	0.232667620)+01	0.219474390)+01
TOTAL	0.219375600)+04	0.207340510)+04	0.139949050)+04	0.448974290)+04	0.235134040)+04	0.229879740)+04

COMPONENT

L(10)

L(11)

L(12)

L(13)

L(14)

L(15)

1	0.253221010-01	0.257930770-01	0.213371730-01	0.206657370-01	0.197352350-01	0.176073350-01
2	0.255708000+00	0.260598000+00	0.215120020+00	0.208428830+00	0.199407290+00	0.178574500+00
3	0.776999340+00	0.740015410+00	0.594255220+00	0.559225090+00	0.519900670+00	0.451053100+00
4	0.164038200+01	0.151962110+01	0.118456400+01	0.108121090+01	0.976013930+00	0.820175310+00
5	0.625383250+01	0.571017390+01	0.437133600+01	0.392493490+01	0.348396100+01	0.288496550+01
6	0.419535410+01	0.379384200+01	0.298046210+01	0.256673530+01	0.226503450+01	0.195804410+01
7	0.515453530+01	0.452225340+01	0.347950360+01	0.307655290+01	0.269501400+01	0.219355850+01
8	0.854243800+01	0.755271950+01	0.558952430+01	0.497473540+01	0.431508480+01	0.347302400+01
9	0.793917340+01	0.697425930+01	0.511346660+01	0.442412740+01	0.379602970+01	0.302440850+01
10	0.103767470+02	0.934861320+01	0.577486150+01	0.579205680+01	0.492217250+01	0.388406000+01
11	0.153115060+02	0.135441540+02	0.971139410+01	0.318307520+01	0.686959640+01	0.555672590+01
12	0.197177520+02	0.155595130+02	0.107563030+02	0.889097930+01	0.735605440+01	0.565901050+01
13	0.366424350+02	0.261867140+02	0.171706750+02	0.137758910+02	0.111845790+02	0.846835550+01
14	0.551253390+02	0.358345240+02	0.217311430+02	0.155982530+02	0.137095740+02	0.973025170+01
15	0.106603920+03	0.550724530+02	0.357113250+02	0.250510120+02	0.188912060+02	0.136209720+02
16	0.133009250+03	0.111805190+03	0.561292400+02	0.347234590+02	0.238926790+02	0.163477650+02
17	0.323248140+03	0.215042330+03	0.107153300+03	0.591315100+02	0.352711070+02	0.217188650+02
18	0.483640110+03	0.381335000+03	0.210735610+03	0.117535330+03	0.635320000+02	0.358370460+02
19	0.412729210+03	0.405724920+03	0.272396200+03	0.177310090+03	0.101401710+03	0.510473810+02
20	0.195412710+03	0.232639300+03	0.136509720+03	0.143817120+03	0.924951040+02	0.465587800+02
21	0.181880060+03	0.262643550+03	0.255406750+03	0.237601830+03	0.176974530+03	0.191927550+03
22	0.823842240+02	0.146134700+03	0.173848000+03	0.197207750+03	0.172677780+03	0.111951560+03
23	0.397992080+02	0.873217230+02	0.127797590+03	0.177833500+03	0.184376400+03	0.137993260+03
24	0.173264440+02	0.465245130+02	0.330334240+02	0.150985070+03	0.187887380+03	0.154321200+03
25	0.444360020+01	0.151549130+02	0.340528500+02	0.724029790+02	0.108654190+03	0.112989700+03
26	0.165357550+01	0.712351130+01	0.200203040+02	0.528273580+02	0.953043500+02	0.120481330+03
27	0.364035820+01	0.212653500+01	0.309537350+01	0.287325810+02	0.585934560+02	0.111501730+03
28	0.334437540-01	0.291811530+03	0.154203000+01	0.352955040+01	0.289717660+02	0.665858210+02
29	0.139030150-02	0.217443990-01	0.215857380+00	0.294729920+01	0.111209570+02	0.426295010+02
30	0.135335820-04	0.463783350-03	0.936436620-02	0.186521010+00	0.216012030+01	0.155670290+02
31	0.492676470-07	0.419203250-05	0.215758100-03	0.966553050-02	0.257673990+00	0.446672100+01
32	0.107802300-09	0.240015900-07	0.518158330-05	0.358032690-03	0.232981270-01	0.973762320+00
33	0.843101590-13	0.495651910-10	0.169501440-07	0.477387980-05	0.759059440-03	0.747889640-01
34	0.341270940-13	0.834264240-15	0.113897570-11	0.123008990-08	0.720455830-06	0.250396710-03
35	0.265324490-24	0.311442370-20	0.195562350-16	0.925020810-13	0.226765940-09	0.313397210-06
36	0.224480210-32	0.188851940-27	0.812229150-23	0.248557670-18	0.370856440-14	0.291551540-10
37	0.121735310-43	0.141716530-37	0.302351990-32	0.301504000-25	0.512285170-21	0.420708560-16
38	0.000000000+00	0.964845190-52	0.211078320-44	0.839473850-38	0.279327900-31	0.431296590-25
39	0.000000000+00	0.000000000+00	0.000000000+00	0.220429180-51	0.745603020-44	0.133046150-36
40	0.213339130+01	0.207362360+01	0.158114990+01	0.151874820+01	0.144045480+01	0.127639020+01
TOTAL	0.220981520+04	0.211571590+04	0.156925550+04	0.156147150+04	0.143715280+04	0.122684700+04

COMPONENT

L(16)

L(17)

L(18)

L(19)

L(20)

L(21)

1	0.45039473)-01	0.942313770)-02	0.771336170)-02	0.712913230)-02	0.541403880)-02	0.459407730)-02
2	0.45075243)+01	0.932723050)-01	0.333543310)-01	0.777211820)-01	0.699598470)-01	0.500551640)-01
3	0.11095221)+01	0.220237240)+00	0.165478820)+00	0.147499080)+00	0.130817660)+00	0.929324970)-01
4	0.19224103)+01	0.357667430)+00	0.241916030)+00	0.208347030)+00	0.182907350)+00	0.129344920)+00
5	0.66056342)+01	0.119483750)+01	0.765103860)+00	0.545105220)+00	0.561858520)+00	0.295584160)+00
6	0.42034937)+01	0.748033360)+00	0.461003520)+00	0.381493990)+00	0.329650770)+00	0.231060260)+00
7	0.49055250)+01	0.860523130)+00	0.513163620)+00	0.418373390)+00	0.359328690)+00	0.251008480)+00
8	0.75475853)+01	0.131789300)+01	0.755213110)+00	0.505814020)+00	0.517095240)+00	0.359997450)+00
9	0.55613573)+01	0.111297330)+01	0.515744370)+00	0.437697820)+00	0.414427900)+00	0.237634330)+00
10	0.33157340)+01	0.139229350)+01	0.747856900)+00	0.586572830)+00	0.496864680)+00	0.344524110)+00
11	0.112370510)+02	0.185277540)+01	0.956856500)+00	0.750265520)+00	0.633443050)+00	0.42849730)+00
12	0.117185600)+02	0.190653340)+01	0.954152160)+00	0.732281010)+00	0.616248210)+00	0.425894170)+00
13	0.17200953)+02	0.276033370)+01	0.132794120)+01	0.100709730)+01	0.844592730)+00	0.582568970)+00
14	0.19330775)+02	0.306173530)+01	0.141030350)+01	0.105541270)+01	0.881659800)+00	0.607022910)+00
15	0.26342642)+02	0.412054400)+01	0.130773030)+01	0.133218890)+01	0.110785370)+01	0.760952370)+00
16	0.30439373)+02	0.470053490)+01	0.194957750)+01	0.141076740)+01	0.116698040)+01	0.799319280)+00
17	0.37773186)+02	0.572965340)+01	0.221398200)+01	0.157015420)+01	0.129068180)+01	0.881134380)+00
18	0.51875544)+02	0.759273130)+01	0.267435290)+01	0.183739030)+01	0.149900240)+01	0.101942950)+01
19	0.63326539)+02	0.944410340)+01	0.238970090)+01	0.190104760)+01	0.153655680)+01	0.174035940)+01
20	0.61340013)+02	0.827650720)+01	0.219478710)+01	0.137537760)+01	0.110190660)+01	0.745288310)+00
21	0.12948487)+03	0.171090750)+02	0.586707080)+01	0.225925880)+01	0.178942090)+01	0.120203980)+01
22	0.14910408)+03	0.200421490)+02	0.338430310)+01	0.205905450)+01	0.160540060)+01	0.107326630)+01
23	0.20059445)+03	0.295584240)+02	0.494022990)+01	0.232878150)+01	0.177593250)+01	0.118162020)+01
24	0.25976307)+03	0.413417340)+02	0.701758040)+01	0.296983670)+01	0.220639110)+01	0.145797140)+01
25	0.215542380)+03	0.365163120)+02	0.555756950)+01	0.254333260)+01	0.187368390)+01	0.122925270)+01
26	0.27252570)+03	0.516146090)+02	0.103930210)+02	0.401534670)+01	0.282714400)+01	0.185995640)+01
27	0.32345441)+03	0.713721050)+02	0.175519090)+02	0.637236370)+01	0.469013790)+01	0.301515780)+01
28	0.26935663)+03	0.714377540)+02	0.232551330)+02	0.957702840)+01	0.629671600)+01	0.397146150)+01
29	0.28173529)+03	0.927304560)+02	0.461213740)+02	0.211010450)+02	0.131966070)+02	0.800778380)+01
30	0.21258513)+03	0.886184450)+02	0.758345530)+02	0.422132870)+02	0.252949800)+02	0.142253940)+02
31	0.12525466)+03	0.616005930)+02	0.100324190)+03	0.772132720)+02	0.491509020)+02	0.251933850)+02
32	0.63232103)+02	0.342485530)+02	0.112120160)+03	0.133659460)+03	0.112578310)+03	0.626498940)+02
33	0.11041015)+02	0.625522370)+01	0.398080880)+02	0.785724510)+02	0.104537660)+03	0.862613750)+02
34	0.12201464)+03	0.710660510)-01	0.113597370)+01	0.479741610)+01	0.135135890)+02	0.234008290)+02
35	0.56139578)-03	0.330211240)-03	0.141742730)-01	0.141869720)+00	0.938304920)+00	0.377245310)+01
36	0.26792955)-04	0.158127560)-06	0.235501740)-04	0.729343550)-03	0.145680950)-01	0.173672230)+00
37	0.354051250)-11	0.209140530)-11	0.180190610)-08	0.289454070)-06	0.290055430)-04	0.170055720)-02
38	0.535032050)-19	0.375182700)-19	0.429417290)-15	0.860857260)-12	0.105256920)-08	0.745673900)-06
39	0.271312990)-29	0.160282310)-29	0.427554890)-24	0.220098320)-19	0.715847340)-15	0.137017140)-10
40	0.32416964)+01	0.574093510)+00	0.476059170)+00	0.449210850)+00	0.408994310)+00	0.281295980)+00

TOTAL

0.290555110)+04

0.679677190)+03

0.476555090)+03

0.497352120)+03

0.356457810)+03

0.246294740)+03

CUMPOLEIT

L(22)

L(23)

L(24)

L(25)

L(26)

L(27)

1	0.34075470-02	0.150273370-02	0.112939990-03	0.156931890-05	0.160187040-03	0.395884400-05
2	0.37057320-01	0.169533370-01	0.355336540-02	0.141145850-03	0.497513880-02	0.349240080-03
3	0.684345450-01	0.311265300-01	0.330412710-02	0.418054000-03	0.394496470-01	0.617123300-02
4	0.949314430-01	0.430513350-01	0.134235200-01	0.786511700-03	0.197122710+00	0.569913300-03
5	0.289264000+00	0.130642440+00	0.560579390-01	0.446935450-02	0.140663020+01	0.625173120+00
6	0.168285470+00	0.756543240-01	0.351401320-01	0.304128880-02	0.116504820+01	0.595576450+00
7	0.182268010+00	0.810010110-01	0.408135500-01	0.380431360-02	0.172196890+01	0.985963300+00
8	0.267645170+00	0.116395750+00	0.642444340-01	0.659725680-02	0.363577420+01	0.235604910+01
9	0.277996940+00	0.926893320-01	0.502075150-01	0.531309000-02	0.424723830+01	0.301901570+01
10	0.248540920+00	0.110651350+00	0.728040550-01	0.382609650-02	0.761768010+01	0.577645460+01
11	0.315062140+00	0.140475710+00	0.101653740+00	0.134571420-01	0.186928760+02	0.150639240+02
12	0.305603840+00	0.136104410+00	0.108736750+00	0.157755030-01	0.392412490+02	0.332736140+02
13	0.418313250+00	0.195712250+00	0.104908020+00	0.252155130-01	0.788331020+02	0.649554540+00
14	0.435700850+00	0.192872330+00	0.190335830+00	0.233510010-01	0.797838830+02	0.726922050+02
15	0.545262750+00	0.240855780+00	0.204675430+00	0.512601770-01	0.853249190+02	0.776766220+02
16	0.571494030+00	0.251345330+00	0.309207360+00	0.562099020-01	0.725007920+02	0.639883090+00
17	0.623341470+00	0.275095150+00	0.379222280+00	0.399015270-01	0.581937920+02	0.561482660+02
18	0.724742000+00	0.317370000+00	0.487966340+00	0.128174770+00	0.371375650+02	0.362010000+02
19	0.737041420+00	0.321493000+00	0.533237000+00	0.161048480+00	0.129497210+02	0.127172330+02
20	0.525054800+00	0.228283060+00	0.427574320+00	0.134232930+00	0.308975090+01	0.304695050+01
21	0.845450200+00	0.366748300+00	0.745421000+00	0.252914630+00	0.141729660+01	0.140220310+01
22	0.753233510+00	0.325173420+00	0.710737150+00	0.262201160+00	0.314331110+00	0.312263320+00
23	0.325253150+00	0.355264700+00	0.847344550+00	0.332998330+00	0.738935700-01	0.734337500-01
24	0.101551530+01	0.434840520+00	0.111005030+01	0.474472710+00	0.159267890-01	0.153516140-01
25	0.852505770+00	0.363491000+00	0.100570700+01	0.457374110+00	0.189185000-02	0.138511910-02
26	0.127036310+01	0.539104390+00	0.159703520+01	0.778945550+00	0.323366900-03	0.332477370-03
27	0.200763000+01	0.871675900+00	0.230527970+01	0.149455760+01	0.261634860-04	0.261165540-04
28	0.209551050+01	0.112593050+01	0.396422240+01	0.232879920+01	0.644407320-06	0.542719370-06
29	0.532626790+01	0.218923330+01	0.347256490+01	0.567448710+01	0.396082580-08	0.395386850-08
30	0.300027680+01	0.358023530+01	0.148077150+02	0.113130060+02	0.298387170-11	0.298335570-11
31	0.140309920+02	0.509477560+01	0.209331780+02	0.278164820+02	0.575699190-15	0.575668750-15
32	0.313095600+02	0.910203240+01	0.321391030+02	0.292463450+02	0.583685530-19	0.583676080-19
33	0.572379900+02	0.171051050+02	0.474313300+02	0.449199720+02	0.192912590-23	0.192911730-23
34	0.321000370+02	0.168003480+02	0.512905930+02	0.499723810+02	0.816631730-21	0.816631070-21
35	0.118085110+02	0.129695350+02	0.518514730+02	0.511401540+02	0.449140160-39	0.449140090-39
36	0.159551390+01	0.477728750+01	0.527333270+02	0.525515520+02	0.844780990-50	0.844780970-50
37	0.754250030-01	0.105310040+01	0.476482050+02	0.496044020+02	0.000000000+00	0.000000000+00
38	0.395229110-03	0.649343530-01	0.349073070+02	0.349045810+02	0.000000000+00	0.000000000+00
39	0.199401630-05	0.914091560-03	0.140323520+02	0.140323140+02	0.000000000+00	0.000000000+00
40	0.210333330+00	0.371750340-01	0.377946250+01	0.435084110+01	0.236516780+01	0.226235090+01
TOTAL	0.179357000+03	0.302091030+02	0.408277360+03	0.382684520+03	0.509979070+03	0.465819500+03

COMPONENT

L(28)

L(29)

L(30)

L(31)

L(32)

L(33)

1	0.945131394)+J+	0.252031170-J5	0.216752330 02	0.552462420- C5	0.22913490-C4	0.177810830- C6
2	0.257519950)-J2	0.187257730)-J3	0.0031337000-02	0.504457450)-03	0.394508770)-03	0.163772540)-04
3	0.138021330)-01	0.187753240)-J2	0.221947490)-01	0.271503350)-02	0.955467390)-03	0.515153500)-04
4	0.459252710)-J1	0.994607330)-J2	0.494225930)-01	0.309772180)- C2	0.157509870)-C2	0.100161740)-03
5	0.267549320)+J0	0.865421210)-J1	0.245527670)+00	0.568478840)-01	0.675972670)-02	0.592234310)-03
6	0.211549600)+00	0.735036570)- J1	0.178547250)+00	0.470017710)- 01	0.436831530)-02	0.421759280)-03
7	0.294302250)+J0	0.123142370)+J0	0.232721950)+00	0.581082270)- C1	0.518937850)-C2	0.545412920)-03
8	0.566623570)+00	0.270875840)+J0	0.412310230)+00	0.136695430)+00	0.834242320)-02	0.975534120)-03
9	0.578845000)+00	0.308311500)+J0	0.394045330)+00	0.144572660)+00	0.739725310)-02	0.951486350)-03
10	0.841072520)+00	0.485955350)+J0	0.542775230)+00	0.215829530)+00	0.966186030)-C2	0.134561040)-C2
11	0.132176720)+C1	0.829786030)+J0	0.305108780)+00	0.349036950)+00	0.135940870)-01	0.207241250)-02
12	0.158509340)+01	0.107260210)+J1	0.919821150)+00	0.423905290)+00	0.146504650)-01	0.245090590)-02
13	0.270313700)+01	0.195732730)+01	0.144757430)+01	0.739813440)+00	0.223269850)-01	0.418972220)-02
14	0.302332010)+01	0.277755740)+01	0.175433300)+01	0.969213910)+00	0.260105290)-01	0.528186710)-02
15	0.622200320)+01	0.502212330)+J1	0.256432340)+01	0.152505520)+01	0.365937100)-01	0.821793400)-02
16	0.101357630)+02	0.853954510)+01	0.315231730)+01	0.201015720)+C1	0.432738640)-C1	0.107695930)-C1
17	0.199013230)+02	0.173798690)+J2	0.410588590)+01	0.279375030)+01	0.538288540)-01	0.148671700)-01
18	0.399224400)+02	0.359705580)+02	0.576246470)+01	0.410109900)+01	0.703617440)-01	0.215827160)-01
19	0.525655820)+J2	0.484225990)+02	0.733928710)+01	0.574375890)+C1	0.812152250)-C1	0.276276490)-01
20	0.363300680)+J2	0.340101590)+J2	0.579892500)+01	0.537049720)+01	0.634311930)-01	0.233522920)-01
21	0.501848870)+02	0.475001930)+J2	0.142300350)+02	0.117755770)+02	0.112072380)+00	0.445472570)-01
22	0.343636120)+J2	0.323854760)+J2	0.172324500)+02	0.145223980)+C2	0.109045850)+00	0.467231040)-01
23	0.254152990)+J2	0.245151340)+02	0.249032060)+J2	0.214835000)+02	0.130343390)+00	0.600790340)-01
24	0.175845580)+02	0.170324070)+J2	0.308754370)+J2	0.325391980)+02	0.173357680)+J0	0.859959440)-01
25	0.633597740)+J1	0.603042550)+J1	0.329344140)+02	0.296934770)+02	0.357670000)+00	0.834425780)-01
26	0.402509070)+J1	0.395163400)+01	0.471163330)+J2	0.431452430)+02	0.252381350)+00	0.142442300)+01
27	0.163252020)+01	0.161070240)+J1	0.658759480)+J2	0.614985860)+02	0.447918420)+00	0.273905990)+01
28	0.332044130)+00	0.329080450)+J0	0.556132440)+02	0.632535960)+02	0.641301910)+00	0.429273000)+01
29	0.437581890)-01	0.435417050)-01	0.832412130)+02	0.855002320)+02	0.141131890)+01	0.175171800)+01
30	0.200316300)-J2	0.199863930)-J2	0.340315450)+02	0.326290910)+02	0.269088930)+01	0.222837040)+01
31	0.433558030)-04	0.438163590)-04	0.596519130)+02	0.581950460)+02	0.494901540)+01	0.443812540)+01
32	0.646944600)-06	0.548723750)-J6	0.326343520)+02	0.325677740)+02	0.126019120)+02	0.118745840)+02
33	0.344829270)-J8	0.344786510)-08	0.597520960)+01	0.596545060)+01	0.175104030)+J2	0.169456190)+02
34	0.231045400)-12	0.231638700)-12	0.079227590)-01	0.678869420)-C1	0.477655800)+01	0.470753300)+01
35	0.397336780)-17	0.397334410)-17	0.315668330)-03	0.315620060)-03	0.771979290)+00	0.767503620)+00
36	0.165195610)-23	0.165195430)-23	0.151174240)-06	0.151169230)-06	0.355851350)-01	0.355146070)-01
37	0.103180800)-32	0.103180350)-32	0.199947840)-11	0.199947020)-11	0.348630420)-03	0.348494420)-03
38	0.225917350)-45	0.225917350)-45	0.358692410)-19	0.358692320)-19	0.152390650)-06	0.152885800)-06
39	0.000000000)+00	0.000000000)+00	0.153237970)-29	0.153237970)-29	0.280939010)-11	0.280938670)-11
40	0.121583590)+01	0.169104970)+J1	0.258311140)+01	0.350030090)+01	0.381409360)+00	0.438829850)+00
TOTAL	0.318915880)+J3	0.293657530)+J3	0.515257070)+03	0.571199200)+03	0.476230630)+02	0.437796870)+02



COMPONENT	WS(1)	WS(2)	WS(3)	WS(4)	WP(1)	WP(2)
1	0.82825353)-02	0.433957550-02	0.900901480-02	0.941967320-03	0.159507560-01	0.253690590-01
2	0.83200425)-01	0.437523230-01	0.93551790-01	0.102652810-01	0.166347180+00	0.266932190+00
3	0.237133170)+00	0.120852980+00	0.210557250+00	0.190548250-01	0.372798520+00	0.835526230+00
4	0.733950820)+00	0.240923370+00	0.341747040+00	0.265208060-01	0.605428440+00	0.192012440+01
5	0.315077430)+01	0.389065960+00	0.114236920+01	0.311105440-01	0.202260210+01	0.792990200+01
6	0.220514740)+01	0.535845300+00	0.715152530+00	0.473764590-01	0.126520100+01	0.540306590+01
7	0.285718440)+01	0.707631070+00	0.822705790+00	0.514666200-01	0.145662760+01	0.686563600+01
8	0.526069710)+01	0.115713300+01	0.125936830+01	0.738124340-01	0.223031510+01	0.121334030+02
9	0.553534380)+01	0.104102250+01	0.106405240+01	0.590174850-01	0.188393970+01	0.119395950+02
10	0.941236050)+01	0.137790950+01	0.133110350+01	0.706410200-01	0.235676240+01	0.175167550+02
11	0.213726880)+02	0.197515310+01	0.178090170+01	0.399092300-01	0.315314480+01	0.307299660+02
12	0.440491140)+02	0.218767750+01	0.132276910+01	0.373250900-01	0.322730780+01	0.458313960+02
13	0.957395550)+02	0.349225370+01	0.253901200+01	0.119470700+00	0.467245720+01	0.113635410+03
14	0.848454140)+02	0.441980250+01	0.292715530+01	0.124465620)+00	0.518264210+01	0.164234800+03
15	0.892241010)+02	0.726317090+01	0.393943550+01	0.156025230+00	0.597489990+01	0.264215570+03
16	0.748948620)+02	0.114153310+02	0.449398230+01	0.162892950+00	0.795674300+01	0.340825420+03
17	0.595757200)+02	0.217964930+02	0.547782070+01	0.180667280+00	0.969856110+01	0.414736610+03
18	0.377732460)+02	0.428605970+02	0.725905990+01	0.209023230+00	0.128524030+02	0.399276740+03
19	0.131093030)+02	0.554014760+02	0.904813690+01	0.213514680+00	0.160200230+02	0.208427830+03
20	0.311746690)+01	0.379639060+02	0.791282940+01	0.152403430+00	0.140099240+02	0.669359090+02
21	0.142791500)+01	0.519460570+02	0.163570330+02	0.246455540+00	0.289607600+02	0.411395590+02
22	0.310563950)+00	0.352582060+02	0.191612450+02	0.220081390+00	0.539256150+02	0.127957090+02
23	0.742257560)-01	0.259922150+02	0.271120000)+02	0.242275710)+00	0.480026850+02	0.380914920+01
24	0.159321370)-01	0.179047350+02	0.395243500)+02	0.298941630+00	0.599797060+02	0.108977820+01
25	0.189590760)-02	0.693652520+01	0.349118050+02	0.252045260+00	0.618124960+02	0.177350200+00
26	0.534046330)-03	0.407184240+01	0.493450160+02	0.377263590+00	0.373687400+02	0.401662210)-01
27	0.262003030)-04	0.164643270+01	0.632351210+02	0.518232340+00	0.120812520+02	0.461113810)-02
28	0.644357660)-05	0.333965330+00	0.582978340+02	0.314305120+00	0.120923660+03	0.184125560)-03
29	0.396251930)-08	0.439022910)-01	0.896107750+02	0.164191130+01	0.158658810+03	0.226869210)-05
30	0.298435920)-11	0.200627040)-02	0.847214330+02	0.291688950+01	0.150002070+03	0.430657120)-08
31	0.575730610)-15	0.438841350)-04	0.538929040+02	0.514719340+01	0.104271820+03	0.236533330)-11
32	0.583695900)-19	0.647103700)-06	0.527432570+02	0.128455980+02	0.579730100+02	0.705209650)-15
33	0.192913520)-23	0.344863510)-08	0.598029550+01	0.176869810+02	0.105882090+02	0.701625380)-19
34	0.816532550)-31	0.231651290)-12	0.679425230)-01	0.479809210+01	0.120294470+00	0.151560770)-25
35	0.449140240)-39	0.397338970)-17	0.315697620)-03	0.773501560+00	0.558952980)-03	0.461530410)-33
36	0.844781010)-50	0.165195750)-23	0.151177450)-06	0.356095520)-01	0.267664630)-06	0.669755750)-42
37	0.000000000)+00	0.163185370)-32	0.199948410)-11	0.348681250)-03	0.354015220)-11	0.000000000)+00
38	0.000000000)+00	0.225917350)-45	0.358632470)-19	0.152892540)-06	0.635076780)-19	0.000000000)+00
39	0.000000000)+00	0.000000000)+00	0.153237930)-29	0.280939130)-11	0.271312860)-29	0.000000000)+00
40	0.713329470)+00	0.321535130)+00	0.548965430)+00	0.576767620)-01	0.971784230)+00	0.215564700)+01
TOTAL	0.546403560)+03	0.339502500)+03	0.549835570)+03	0.509102070)+02	0.115049850)+04	0.217849310)+04

COMPUTE IF

V(I)

L(I)

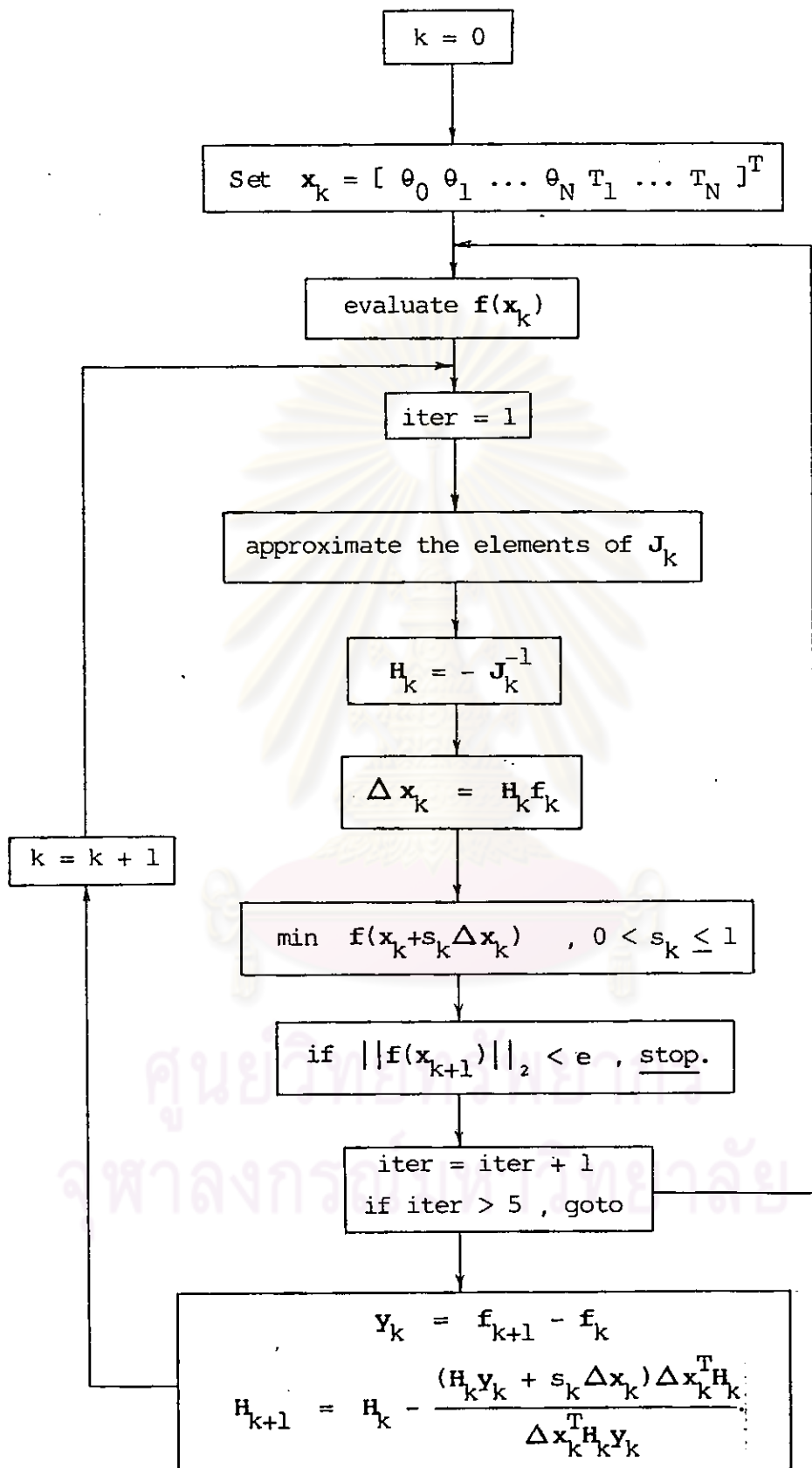
***** DEM POINT FUNCTION VALUE *****

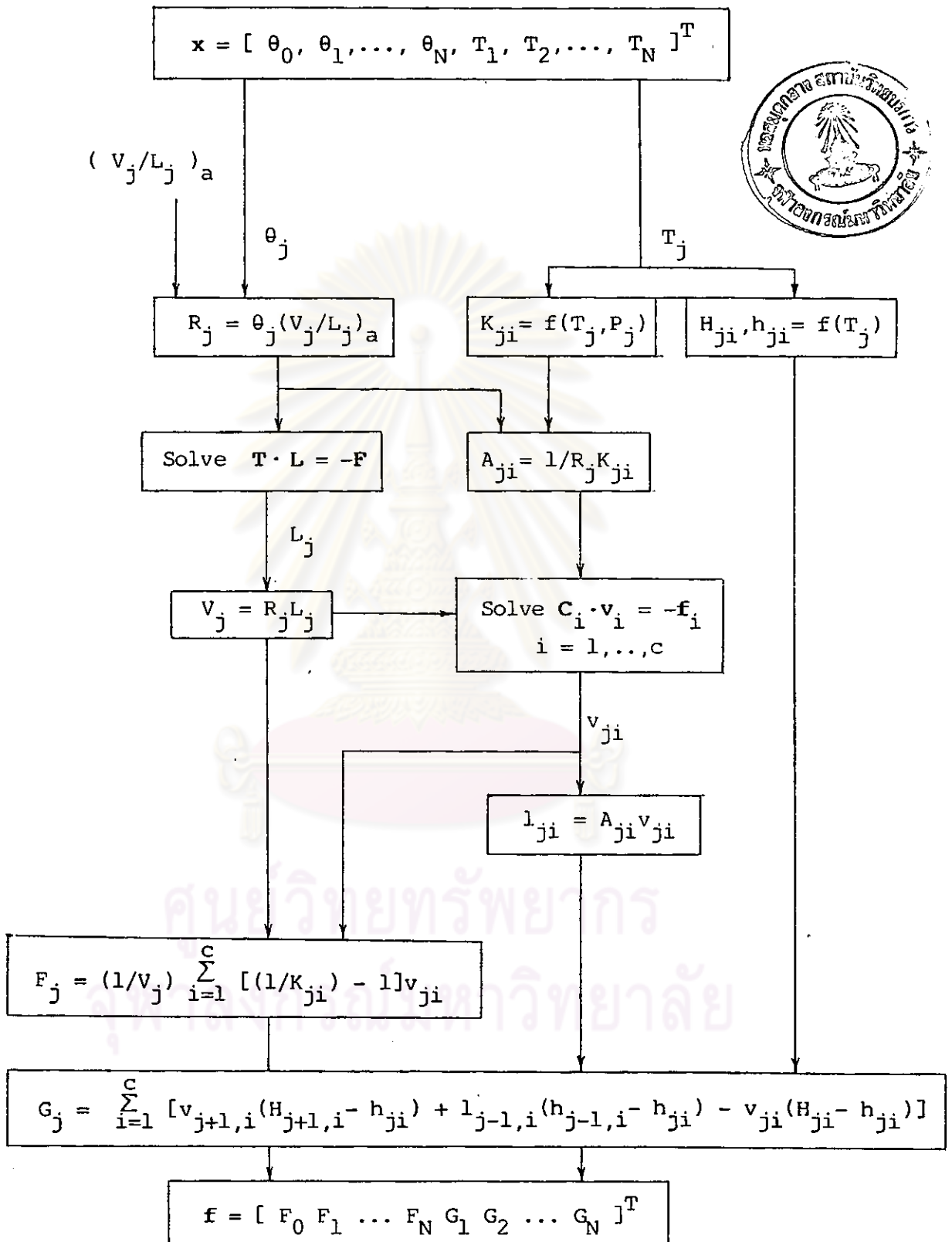
1	0.93153372)+01	0.447444070)+00
2	0.29393915)+02	0.663095020)+01
3	0.29516486)+02	0.219040330)+02
4	0.18529063)+02	0.419154930)+02
5	0.17385914)+02	0.11349244)+03
6	0.663+97350)+01	0.622050010)+02
7	0.46553370)+01	0.6327+2340)+02
8	0.36707557)+01	0.818832390)+02
9	0.16839172)+01	0.583890540)+02
10	0.124515620)+01	0.617933930)+02
11	0.84857134)+00	0.625441520)+02
12	0.312155060)+00	0.343773370)+02
13	0.747950220)-01	0.123937+90)+02
14	0.724115200)-02	0.163407520)+01
15	0.548902250)-03	0.256151910)+00
16	0.+13001500)-04	0.263643370)-01
17	0.235435250)-05	0.242043530)-02
18	0.933375410)-07	0.158953110)-03
19	0.212590800)-08	0.621892010)-05
20	0.611044920)-10	0.26933+720)-05
21	0.329759430)-11	0.220555370)-07
22	0.8+1513000)-13	0.35385+730)-09
23	0.221085900)-14	0.345762000)-10
24	0.516873520)-16	0.124406230)-11
25	0.6+0490070)-18	0.233325570)-13
26	0.112131920)-19	0.648921330)-15
27	0.358133380)-22	0.389036+30)-17
28	0.1+1819470)-25	0.328+38+20)-20
29	0.168975+60)-30	0.128493330)-24
30	0.204163+00)-37	0.877313150)-31
31	0.173513310)-45	0.602785350)-38
32	0.175323810)-53	0.303989200)-45
33	0.128317220)-61	0.235498000)-53
34	0.234+3+240)-73	0.840361550)-65
35	0.00000000)+00	0.00000000)+00
36	0.00000000)+00	0.00000000)+00
37	0.00000000)+00	0.00000000)+00
38	0.00000000)+00	0.00000000)+00
39	0.00000000)+00	0.00000000)+00
40	0.237209620)+01	0.00000000)+00

F(1) =	0.115719444350)-04
F(2) =	-0.3004503+5710)-05
F(3) =	-0.117591306130)-05
F(4) =	-0.137929028720)-05
F(5) =	-0.130599931500)-05
F(6) =	-0.134237735170)-05
F(7) =	-0.141169753910)-05
F(8) =	-0.980266071730)-06
F(9) =	-0.166931135630)-05
F(10) =	-0.149355473930)-05
F(11) =	-0.140185569320)-05
F(12) =	-0.1300+7225200)-05
F(13) =	-0.13794222110)-05
F(14) =	-0.123342739110)-05
F(15) =	-0.115378672310)-05
F(16) =	-0.115089423400)-05
F(17) =	-0.117635997750)-05
F(18) =	-0.1398553411+0)-05
F(19) =	-0.792+35496910)-06
F(20) =	-0.440831278380)-06
F(21) =	0.964276550040)-06
F(22) =	0.216210722490)-05
F(23) =	-0.4381731535+0)-05
F(24) =	-0.211745737+30)-04
F(25) =	-0.252828294470)-05
F(26) =	-0.126330101370)-05
F(27) =	-0.4707568205+0)-05
F(28) =	-0.214603754690)-05
F(29) =	-0.717560071080)-06
F(30) =	-0.557+05908620)-06
F(31) =	-0.106738558140)-05
F(32) =	-0.846036214240)-06
F(33) =	-0.323449329420)-04
F(34) =	-0.508382307020)-05

***** CHECK ENTHALPY FUNCTION *****

STAGE	GL (I)	GU (I)	GS (I)
1	0.53213821)+03	0.532137480)+03	-0.233297220-06
2	0.43770015)+03	0.437699920)+03	0.932733570-07
3	0.47106072)+03	0.471060520)+03	0.735378300-07
4	0.47130831)+03	0.471308170)+03	0.550731920-07
5	0.46333000)+03	0.4633380320)+03	0.429037420-07
6	0.43055517)+03	0.430555440)+03	0.103230690-06
7	0.62133974)+03	0.621533410)+03	0.510341310-06
8	0.56120503)+03	0.561255810)+03	0.630237930-07
9	0.57753143)+03	0.577551720)+03	0.896570230-07
10	0.57420516)+03	0.574205340)+03	0.591393170-07
11	0.56515231)+03	0.565152440)+03	0.516212400-07
12	0.54307250)+03	0.542072790)+03	0.108941580-06
13	0.52355110)+03	0.523551320)+03	0.339332640-07
14	0.51263503)+03	0.512635180)+03	0.576036030-07
15	0.49195443)+03	0.491954540)+03	0.564249590-07
16	0.70375295)+03	0.703752130)+03	0.314602790-06
17	0.52168450)+03	0.521684730)+03	0.459233430-07
18	0.44451431)+03	0.444514330)+03	0.859158770-07
19	0.40948333)+03	0.409484540)+03	0.208523450-06
20	0.39567048)+03	0.395670570)+03	0.318776430-07
21	0.38013013)+03	0.380129970)+03	-0.580647350-06
22	0.36499733)+03	0.364995060)+03	-0.893597300-06
23	0.34565497)+03	0.345653900)+03	0.139546750-05
24	0.23379123)+02	0.233789450)+02	-0.705355130-07
25	0.24911770)+02	0.249117290)+02	-0.159239100-07
26	0.19618995)+02	0.196189390)+02	-0.229420550-08
27	0.14483562)+02	0.144835550)+02	-0.203788920-08
28	0.11392230)+02	0.113922300)+02	-0.129571300-08
29	0.81916095)+01	0.819150750)+01	-0.735730790-09
30	0.21246984)+02	0.212469740)+02	-0.384451050-08
31	0.15774137)+02	0.157741790)+02	-0.239516580-08
32	0.33478930)+01	0.334789950)+01	-0.936274910-08
33	0.28037177)+01	0.280371100)+01	-0.257633920-08





Flowchart of the Function Evaluation Routine.