

Matrix f_ij:

I	A	R	N	D	C	Q	E	G	H	I	L	K	M	F	P	S	T	W	Y	V
A	91866	56927	10417	7997	14417	11138	16108	79231	10146	27142	49617	46325	10813	12449	20793	29601	69732	6533	19203	114912
R	56927	70898	29216	23265	715	24244	31538	29301	6605	1520	3852	44631	760	2366	23237	22051	9134	604	2188	4037
N	10417	29216	96109	19740	1030	14904	7947	25595	23577	7254	17870	82686	1168	17060	6468	32767	24466	592	4439	20240
D	7997	23265	19740	14637	903	13383	20788	2479	2653	4145	30045	638	2026	12608	28629	26391	772	3909	4719	
C	14417	715	1030	903	4081	243	521	4959	7930	5364	16556	946	4690	3957	347	4722	9577	6622	11691	24655
Q	11138	24244	14904	13383	243	9445	6023	5757	5064	1519	5231	9526	900	654	5526	28053	36073	295	535	2377
E	16108	31538	7947	15385	521	6023	10893	34329	2323	1000	5199	16593	766	608	12210	12015	6334	408	3779	3290
G	79231	29301	25595	20788	4959	5757	34329	449525	10743	5274	8318	29549	1153	4095	11047	18581	15651	2387	68220	25894
H	10146	6605	23577	2479	7930	5064	2323	10743	271267	7599	41497	11214	10495	5924	1722	4511	4041	109	6192	26223
I	27142	1520	7254	2653	5364	1519	1000	5274	7599	18801	104968	9903	16173	15975	13080	4784	12273	3792	20175	63570
L	49617	3852	17870	4145	16556	5231	5199	8318	41497	104968	275842	16568	75894	43372	29378	10582	24171	29033	53784	167344
K	46325	44631	82686	30045	946	9526	16593	29549	11214	9903	16568	38101	2063	8454	19534	24433	9533	964	2878	25965
M	10813	760	1168	638	4690	900	766	1153	10495	16173	75894	2063	7142	6094	5203	2289	6318	3532	6842	31176
F	12449	2366	17060	2026	3957	654	608	4095	5924	15975	43372	6454	6094	5642	1538	3360	6427	2650	10627	37706
P	20793	23237	6468	12608	347	5526	12210	11047	1722	13080	29378	19534	5203	1538	13118	9107	8150	271	663	14951
S	29601	22051	32767	28629	4722	28053	12015	18581	4784	10582	24433	22063	4511	107	25843	9107	70676	3544	6947	20070
T	69732	9134	24466	26391	9577	36073	6334	15651	4041	12273	24171	9533	6318	6427	8150	70676	63206	3743	7622	55780
W	6533	604	592	772	6622	295	408	2387	109	3792	29033	964	3532	2650	271	3544	3743	4074	11945	14307
Y	19203	2188	4439	3909	11691	535	3779	68220	6192	20175	53784	2878	6842	10627	663	6947	7622	11945	22000	40515
V	114912	4037	20240	4719	24655	2377	3290	25894	26223	63570	167344	25965	31176	37706	14951	20070	55780	14307	40515	88302

Matrix q_ij:

I	A	R	N	D	C	Q	E	G	H	I	L	K	M	F	P	S	T	W	Y	V
A	0.0192950	0.0119566	0.0021879	0.0016796	0.0030281	0.0023394	0.0033832	0.0166412	0.0021310	0.0057007	0.0104213	0.0097298	0.0022711	0.0026147	0.0043672	0.0062172	0.0146461	0.0013722	0.0040333	0.0241354
R	0.0119566	0.0148910	0.0061364	0.0048864	0.0001502	0.0050921	0.0066241	0.0061542	0.0013873	0.0003913	0.0008091	0.0093740	0.0001596	0.0004969	0.0048806	0.0046315	0.0019185	0.0001269	0.0004596	0.0008479
N	0.0021879	0.0061364	0.0201862	0.0041461	0.0002163	0.0031303	0.0016691	0.0053758	0.0049520	0.0015236	0.0037533	0.0173669	0.0002453	0.0035832	0.0013585	0.0068822	0.0051387	0.0001243	0.0009323	0.0042511
D	0.0016796	0.0048864	0.0041461	0.0030743	0.0001897	0.0002810	0.0032314	0.0043662	0.0005207	0.0005572	0.0008706	0.0063105	0.0001340	0.0004255	0.0026481	0.0060131	0.0055430	0.0001621	0.0008210	0.0009912
C	0.0030281	0.0001502	0.0002163	0.0001897	0.00008571	0.0000510	0.0001094	0.0010416	0.0016656	0.0011266	0.0034773	0.0001987	0.0009851	0.0000831	0.0000729	0.0000918	0.0020115	0.0013908	0.0024555	0.0051784
Q	0.0023394	0.0050921	0.0031303	0.0028109	0.0000510	0.0019838	0.0012650	0.0012092	0.0010636	0.0003190	0.0010987	0.0020008	0.0001890	0.0001374	0.0011606	0.0058921	0.0075766	0.0000620	0.0001124	0.0004993
E	0.0033832	0.0066241	0.0016691	0.0032314	0.0001094	0.0012650	0.0022879	0.0072103	0.0004879	0.0002100	0.0010920	0.0034851	0.0001609	0.0001277	0.0025645	0.0025236	0.0013304	0.0000857	0.0007937	0.0006910
G	0.0166412	0.0061542	0.0053758	0.0043662	0.0005207	0.0012092	0.0072103	0.0944155	0.0022564	0.0011077	0.0017471	0.0062063	0.0002422	0.0008601	0.0023202	0.0039026	0.0027472	0.0005014	0.0013304	0.0054386
H	0.0021310	0.0013873	0.0049520	0.005207	0.0010636	0.0004879	0.0004879	0.0569753	0.0015960	0.0087158	0.0023553	0.0022043	0.0012442	0.0003617	0.0009475	0.0008487	0.0000229	0.0013005	0.0055077	0.0000229
I	0.0057007	0.0003913	0.0015236	0.0005572	0.0011266	0.0003190	0.0002100	0.0011077	0.0015960	0.0039488	0.0220468	0.0020800	0.0003369	0.0003553	0.0027472	0.0010048	0.0025777	0.0007964	0.0042374	0.0133519
L	0.0104213	0.0008091	0.0037533	0.0008706	0.0034773	0.0010987	0.0010920	0.0017471	0.0087158	0.0220468	0.0579362	0.0034798	0.0159403	0.0091096	0.0061704	0.0022226	0.0050767	0.0060979	0.0112965	0.0351497
K	0.0097298	0.0093740	0.0173669	0.0063105	0.0001987	0.0020008	0.0034851	0.0062063	0.0023553	0.0020800	0.0034798	0.0080025	0.0004333	0.0017756	0.0041028	0.0051318	0.0020023	0.0006408	0.0054535	0.0065480
M	0.0022711	0.0001596	0.0002163	0.0001897	0.00008571	0.0000510	0.0001094	0.0010416	0.0016656	0.0011266	0.0034773	0.0001987	0.0009851	0.0000831	0.0000729	0.0000918	0.0020115	0.0013908	0.0024555	0.0051784
F	0.0026147	0.0004969	0.0035832	0.0004255	0.0008311	0.0001374	0.0001277	0.0008601	0.0012442	0.0003553	0.0091096	0.0017756	0.0012999	0.0011850	0.0003230	0.0007057	0.0013499	0.0005566	0.0023220	0.0071955
P	0.0043672	0.0048806	0.0013585	0.0026481	0.000729	0.0011606	0.0025645	0.0023202	0.0003617	0.0027472	0.0061704	0.0041028	0.0012799	0.0003230	0.0027552	0.0019128	0.0017118	0.0000569	0.0001393	0.0031402
S	0.0062172	0.0046315	0.0019185	0.0008222	0.0001269	0.0005921	0.0025236	0.0039026	0.0009475	0.0010048	0.0222226	0.0051318	0.0004808	0.0007057	0.0019128	0.0054279	0.0148444	0.0007444	0.0014591	0.0042154
T	0.0146461	0.0019185	0.0051387	0.0005430	0.0020115	0.0075766	0.0013304	0.0032872	0.0008487	0.0025777	0.0050767	0.0020023	0.0013708	0.0017118	0.0014844	0.0132754	0.0007862	0.0005857	0.0025089	0.0030050
W	0.0013722	0.0001269	0.0001243	0.0001621	0.0013908	0.0000620	0.0000857	0.0005014	0.0000229	0.0007964	0.0060979	0.0002025	0.0007431	0.0005566	0.0000569	0.0007444	0.0007862	0.0005857	0.0025089	0.0030050
Y	0.0040333	0.0004596	0.0009323	0.0008210	0.0024555	0.0001124	0.0007937	0.0143285	0.0013005	0.0042374	0.0112965	0.0006045	0.0014371	0.0022320	0.0001393	0.0014591	0.0016009	0.0025089	0.0046207	0.0085095
V	0.0241354	0.0008479	0.0042511	0.0009912	0.0051784	0.0004993	0.0006910	0.0054386	0.0055077	0.0133519	0.0351497	0.0054535	0.0065480	0.0071955	0.0031402	0.0042154	0.0117157	0.0030050	0.0085095	0.0185464

Array p_i:

I	A	R	N	D	C	Q	E	G	H	I	L	K	M	F	P	S	T	W	Y	V
I	0.0837230	0.0480964	0.0566728	0.0262279	0.0134429	0.0199884	0.0208104	0.1365139	0.0767598	0.0379762	0.1322230	0.0491492	0.0211348	0.0206491	0.0233210	0.0407894	0.0559220	0.0105281	0.0342517	0.0918200

Matrix e_ij:

I	A	R	N	D	C	Q	E	G	H	I	L	K	M	F	P	S	T	W	Y	V
A	0.0070095	0.0080536	0.0094896	0.0043918	0.0022510	0.0033470	0.0034846	0.0228587	0.0128531	0.0063590	0.0221402	0.0082298	0.0035389	0.0034576	0.0039050	0.0068300	0.0093639	0.0017629	0.0057353	0.0153749
R	0.0080536	0.0023133	0.0054515	0.0025229	0.0012931	0.0019227	0.0020018	0.0131317	0.0073837	0.0036530	0.0127189	0.0047278	0.0020330	0.0019863	0.0022433	0.0039237	0.0053793	0.0010127	0.0032948	0.0088324
N	0.0094896	0.0054515	0.0032118	0.0029728	0.0015237	0.0022656	0.0023588	0.0154733	0.0087004	0.0043044	0.0149869	0.0055708	0.0023955	0.0023405	0.0026433	0.0046233	0.0063385	0.0011933	0.0038823	0.0104074
D	0.0043918	0.0025229	0.0029728	0.0006879	0.0007052	0.0010485	0.0010916	0.0071609	0.0040265	0.0019921	0.0069359	0.0025782	0.0011086	0.0010832	0.0012233	0.0021396	0.0029334	0.0005523	0.0017967	0.0048165
C	0.0022510	0.0012931	0.0015237	0.0007052	0.0001807	0.0005374	0.0005595	0.0036703	0.0020638	0.0010210	0.0035549	0.0013214	0.0005682	0.0005552	0.0006270	0.0010967	0.00150			

H		-5	-5	-2	-6	-1	-3	-5	-6	7	-4	-2	-3	-1	-3	-7	-5	-7	-12	-4	-3
I		0	-7	-3	-4	0	-5	-6	-6	-4	3	2	-2	2	2	1	-3	-1	0	1	2
L		-2	-8	-4	-6	0	-5	-5	-9	-2	2	3	-4	3	1	0	-5	-3	2	1	1
K		0	2	3	3	-5	0	2	-2	-3	-2	-4	3	-5	0	2	1	-3	-5	-5	-1
M		-1	-7	-7	-6	2	-4	-5	-9	-1	2	3	-5	3	1	0	-4	-2	1	0	2
F		-1	-4	1	-3	1	-5	-6	-5	-3	2	1	0	1	3	-3	-3	-2	1	1	2
P		0	2	-2	2	-6	1	3	-3	-7	1	0	2	0	-3	5	0	-1	-6	-7	-1
S		0	0	1	3	0	4	1	-3	-5	-3	-5	1	-4	-3	0	3	3	0	-2	-2
T		1	-3	-1	2	1	4	-2	-4	-7	-1	-3	-3	-2	-2	-1	3	4	-1	-3	0
W		-1	-6	-7	-4	5	-6	-5	-5	-12	0	2	-5	1	1	-6	0	-1	6	4	1
Y		-1	-6	-4	-2	3	-7	-2	1	-4	1	1	-5	0	1	-7	-2	-3	4	4	1
V		1	-7	-3	-5	2	-6	-5	-4	-3	2	1	-1	2	2	-1	-2	0	1	1	2