Quantum Annealing Results

n	k	Classical Cost	Route Activation Solver				Full QUBO Solver				GPS (Guillermo, Parfait, Saúl) Solver			
			Quantum Cost	AR*	No. of Vars**	Runtime (in ms)	Quantum Cost	AR*	No. of Vars**	Runtime (in ms)	Quantum Cost	AR*	No. of Vars**	Runtime (in ms)
2	1	2066.086	2066.086	1	3	5561.413	2066.086	1	1	5884.24	2066.086	1	6	5979.675
3	1	1939.642	1939.642	1	10	6429.325	1939.642	1	4	5280.475	1939.642	1	20	5027.799
3	2	2237.084	2237.084	1	12	4909.158	2237.084	1	8	5083.803	2237.084	1	38	4969.594
4	1	2797.502	2797.502	1	18	5943.84	2797.502	1	9	4218.007	2797.502	1	42	5071.935
4	2	3113.639	3113.639	1	21	4962.417	3817.057	1.22592	18	6449.999	3113.639	1	78	6522.219
4	3	4308.378	4308.378	1	24	5058.362	4308.378	1	27	5023.788	4308.378	1	114	6392.373
5	1	3002.919	3002.919	1	28	5450.686	3002.919	1	16	5023.268	3002.919	1	72	6224.755
5	2	2729.425	2729.425	1	32	4972.907	4248.342	1.5565	32	5099.37	2729.425	1	132	5021.522
5	3	4717.941	4717.941	1	36	5000.031	5242.355	1.11115	48	6447.915	4717.941	1	192	6451.455
5	4	6731.176	6731.176	1	40	5803.52	5242.355	0.77882	64	5044.498	6731.176	1	252	5858.887
6	1	3273.864	3273.864	1	40	5350.505	4012.721	1.22568	25	4986.839	3273.864	1	110	4986.419
6	2	4996.348	4996.348	1	45	4957.475	5838.388	1.16853	50	5027.401	4996.348	1	200	5049.951
6	3	7246.672	7246.672	1	50	5051.774	12908.75	1.78134	75	5289.074	7246.672	1	290	5061.576
6	4	6659.028	6659.028	1	55	6475.918	9389.819	1.41009	100	5836.999	6659.028	1	380	6077.985
6	5	7701.647	7701.647	1	60	5337.471	7129.813	0.92575	125	4963.046	7701.647	1	470	5060.668
7	1	2282.492	2282.492	1	54	6474.31	3862.747	1.69234	36	6537.233	2282.492	1	156	5646.966
7	2	4068.226	4068.226	1	60	5290.486	7961.95	1.95711	72	5031.364	5839.844	1.43548	282	4973.854
7	3	4326.399	4326.399	1	66	4977.308	6103.991	1.41087	108	6470.751	4576.457	1.0578	408	5047.067
7	4	5778.04	5778.04	1	72	5005.392	7890.346	1.36557	144	4975.816	6106.257	1.0568	534	5043.873
7	5	7519.599	7519.599	1	78	5019.834	9036.176	1.20168	180	5020.709	7519.599	1	660	5007.274
7	6	9511.217	9511.217	1	84	5066.619	8981.225	0.94428	216	4958.29	9511.217	1	786	5107.462
8	1	3534.248	3943.675	1.11585	70	5068.647	8106.674	2.29375	49	4953.823	3534.248	1	210	4987.679
8	2	3650.398	5335.833	1.46171	77	5012.948	9515.294	2.60665	98	4965.918	8172.38	2.23876	378	5061.944
8	3	4120.553	5455.682	1.32402	84	4976.964	8060.122	1.95608	147	4974.438	9387.285	2.27816	546	5066.505
8	4	7324.706	7547.536	1.03042	91	5065.332	10437.4	1.42496	196	5058.798	13229.36	1.80613	714	5016.24
8	5	10751.69	10751.69	1	98	5022.813	15201.24	1.41385	245	4974.776	15133.51	1.40755	882	5080.699
8	6	14751.99	14751.99	1	105	5028.684	18840.46	1.27715	294	4960.351	14751.99	1	1050	5106.425
8	7	7688.538	7688.538	1	112	5020.314	7855.073	1.02166	343	5014.029	7688.538	1	1218	5113.369
9	1	3207.804	3965.942	1.23634	88	5002.554	6752.618	2.10506	64	5037.936	3897.166	1.2149	272	5030.071
9	2	4029.189	4936.206	1.22511	96	5326.999	8057.456	1.99977	128	4977.981	11737.67	2.91316	488	5002.108
9	3	5530.786	7878.468	1.42448	104	5013.49	11283.96	2.04021	192	4966.794	11457.82	2.07165	704	5458.572
9	4	5438.138	5577.002	1.02554	112	5055.083	9488.189	1.74475	256	5025.641	8996.877	1.6544	920	5069.251
9	5	6645.006	6645.006	1	120	5008.869	10438.14	1.57083	320	5008.889	11266.72	1.69552	1136	5068.712
9	6	8230.212	8378.1	1.01797	128	5006.228	13076.35	1.58882	384	5031.468	11625.26	1.41251	1352	5062.476
9	7	22627.44	22627.44	1	136	5026.413	28177.69	1.24529	448	5948.826	25067.49	1.10784	1568	5104.644
9	8	19409.98	19409.98	1	144	4991.73	19285.31	0.99358	512	5035.34	19409.98	1	1784	5080.328
10	1	2262.111	3173.979	1.4031	108	5037.631	5161.8	2.28185	81	4994.836	3651.984	1.61441	342	5026.796
10	2	2891.264	3817.11	1.32022	117	5043.024	4348.294	1.50394	162	5012.099	6843.052	2.3668	612	5056.077
10	3	3577.452	4736.8	1.32407	126	5034.071	4759.136	1.33031	243	5056.37			882	5013.636
10	4	4289.889	5445.719	1.26943	135	5035.577	7263.181	1.69309	324	5005.75			1152	5334.323
10	5	5042.846	5641.003	1.11861	144	5057.058	11625.16	2.30528	405	4990.966			1422	5136.082
10	6	7066.228	7066.228	1	153	5024.707	10887.92	1.54084	486	5025.629	8588.432	1.21542	1692	5062.831
10	7	8743.659	8743.659	1	162	5033.134	12451.04	1.42401	567	4976.116			1962	5137.981
10	8	13833.09	13833.09	1	171	6466.558	17105.11	1.23654	648	6444.298	16095.05	1.16352	2232	5148.356
10	9	13854.77	13854.77	1	180	5009.188	13225.62	0.95459	729	5022.991	13854.77	1	2502	5174.621
11	1	2943.818	4670.62	1.58659	130	5004.907	4288.183	1.45667	100	4990.424	4001.598	1.35932	420	5069.308
11	2	3283.099	6240.017	1.90065	140	5009.17	8901.442	2.71129	200	5048.476			750	5064.612
11	3	4779.602	6213.641	1.30003	150	5032.773	10237.9	2.142	300	5036.729			1080	5132.082
11	4	6311.157	8690.579	1.37702	160	5050.544	13448.04	2.13084	400	4973.346			1410	5069.364
11	5	8084.325	11142.19	1.37825	170	5049.204	14756.7	1.82535	500	4974.48			1740	5040.164
11	6	10466.45	12874.2	1.23004	180	5028.216	18627.85	1.77977	600	5045.621	17437.05	1.666	2070	5066.419
11	7	13197.95	15494.03	1.17397	190	5017.823	23457.1	1.77733	700	5054.988			2400	5071.287
11	8	17169.06	17904.43	1.04283	200	5066.919	24202.59	1.40966	800	5004.237	22294.54	1.29853	2730	5193.717

AR*: Approximation Ratio
No. of Vars**: Number of CQM Variables
Red box: No feasible result found using the solver

*These results were obtained by running the implementations of above mentioned solvers using `ConstrainedQuadraticModel()` on `LeapHybridCQMSampler` provided by **D-Wave***