Plots for Exercise 1: Question 3: Helium
Ansatz 1

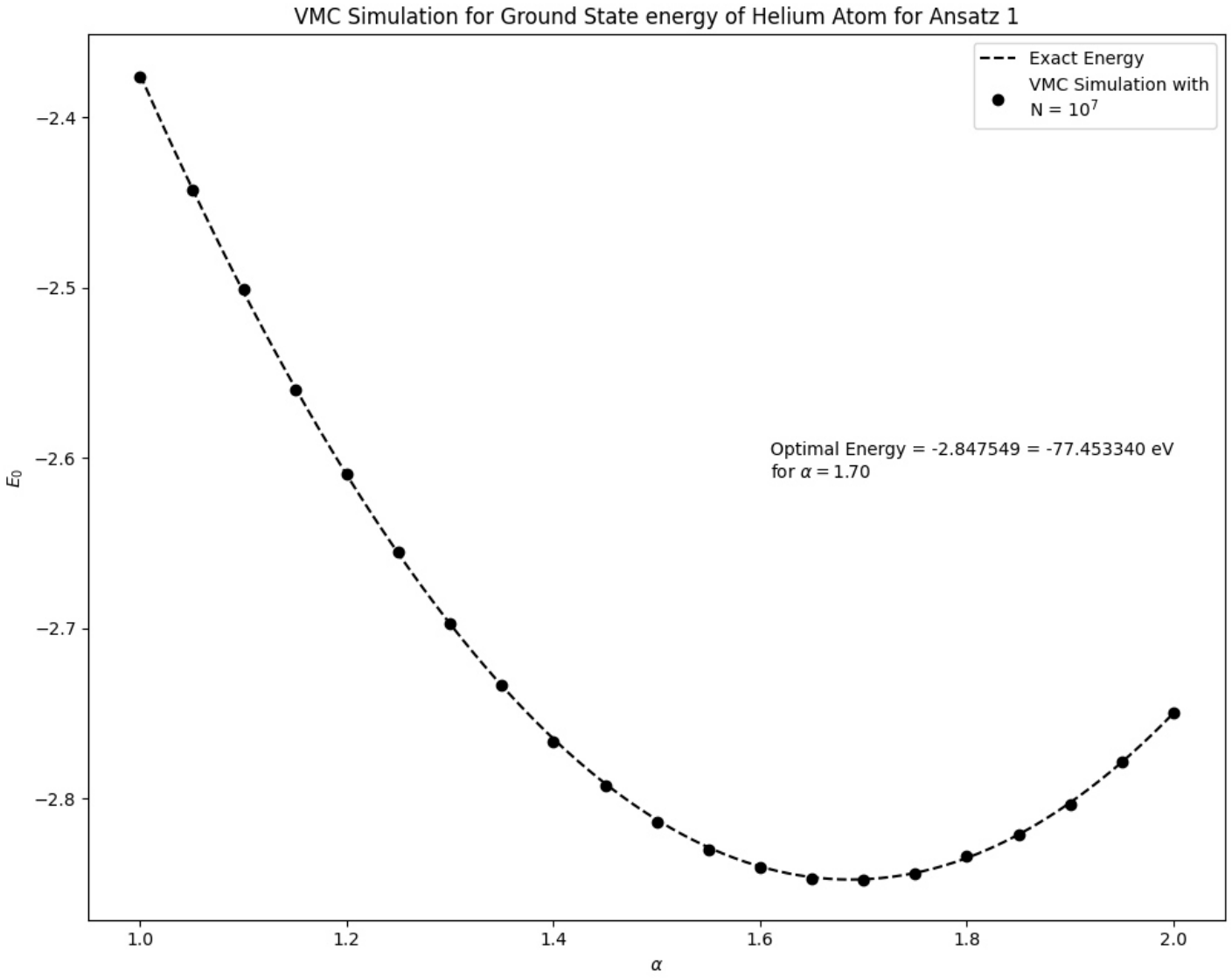

Table 1: Helium: Ansatz 1

alpha	energy	variance
1.0000	-2.3759	1.8862
1.0500	-2.4427	1.8337
1.1000	-2.5010	1.7717
1.1500	-2.5597	2.1957
1.2000	-2.6095	1.6190
1.2500	-2.6549	1.5578
1.3000	-2.6973	1.4845
1.3500	-2.7332	1.4255
1.4000	-2.7668	1.3709
1.4500	-2.7923	1.2223
1.5000	-2.8137	1.1511
1.5500	-2.8303	1.0867
1.6000	-2.8403	1.0602
1.6500	-2.8469	0.9348
1.7000	-2.8475	0.8787
1.7500	-2.8440	0.8394
1.8000	-2.8338	0.8822
1.8500	-2.8215	0.8285
1.9000	-2.8039	0.8688
1.9500	-2.7785	0.9393
2.0000	-2.7496	1.1109

Optimal r_{12} = 1.288

Ansatz 2

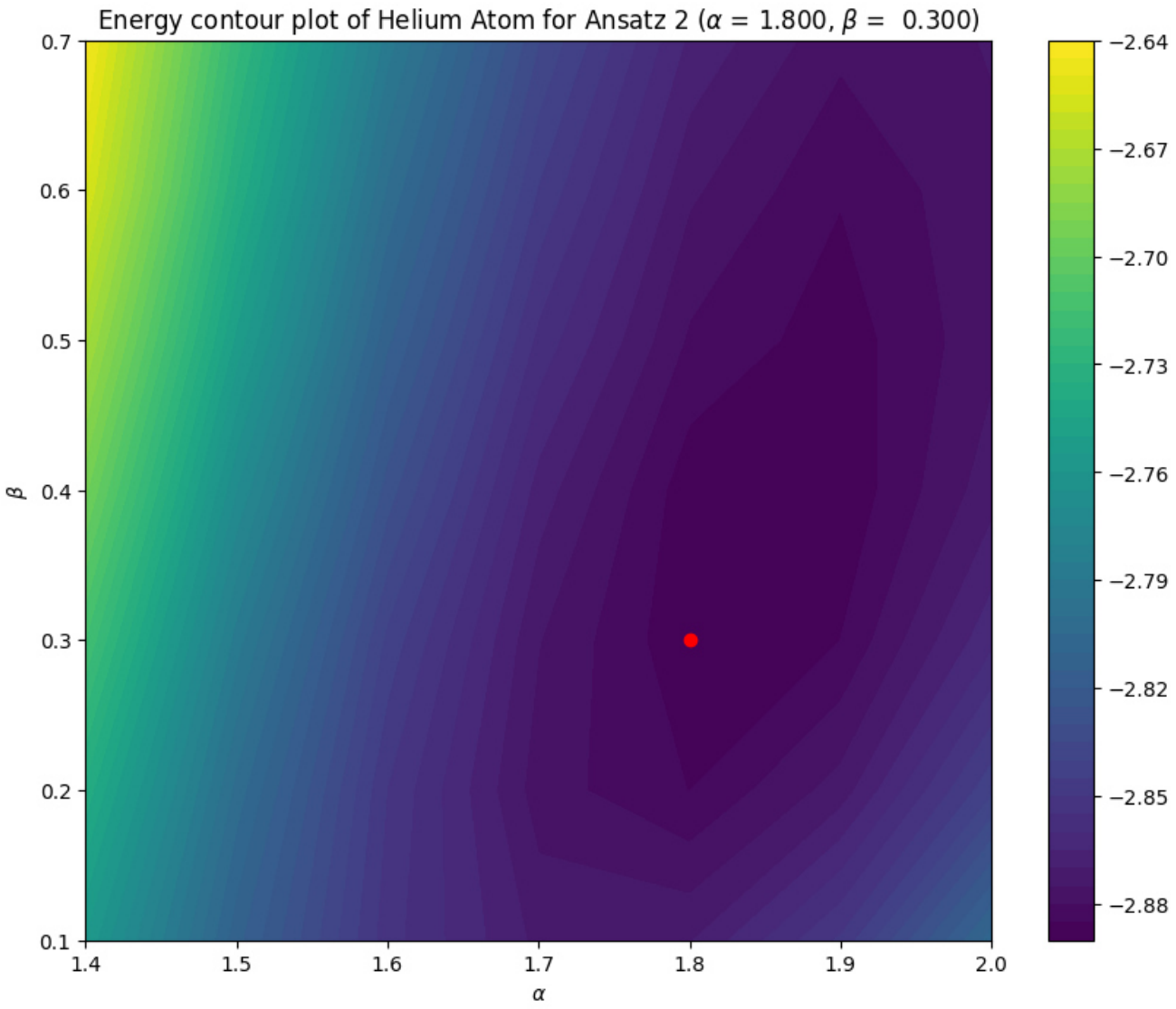

Table 2: Helium: Ansatz 2

alpha	beta	energy	variance
1.7000	0.2000	-2.8776	0.4165
1.7000	0.3000	-2.8748	0.3648
1.7000	0.4000	-2.8673	0.3667
1.8000	0.2000	-2.8851	0.2784
1.8000	0.3000	-2.8891	0.1997
1.8000	0.4000	-2.8882	0.1959
1.9000	0.2000	-2.8729	0.2129
1.9000	0.3000	-2.8850	0.1186
1.9000	0.4000	-2.8891	0.0872

Optimal $r_{12} = 1.387$

Ansatz 3

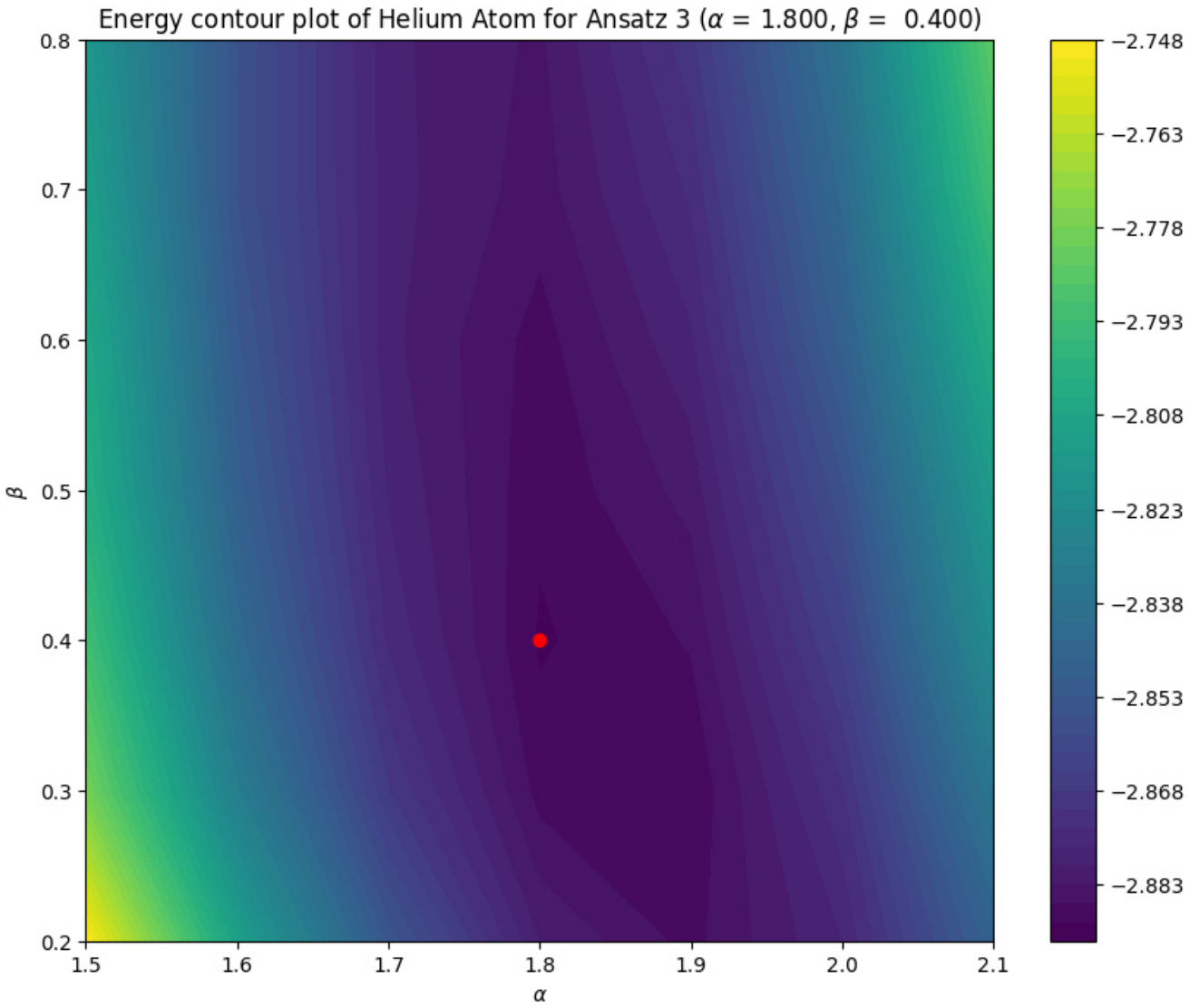

Table 3: Helium: Ansatz 3

alpha	beta	energy	variance
1.7000	0.3000	-2.8679	0.3762
1.7000	0.4000	-2.8747	0.3699
1.7000	0.5000	-2.8775	0.3573
1.8000	0.3000	-2.8873	0.2013
1.8000	0.4000	-2.8895	0.1820
1.8000	0.5000	-2.8883	0.1755
1.9000	0.3000	-2.8887	0.0914
1.9000	0.4000	-2.8857	0.0825
1.9000	0.5000	-2.8819	0.0824

Optimal $r_{12} = 1.380$