Answer key to Lab 8: Stellar Spectra

Q1:

1) that there are fewer and fewer molecules as stars grow hotter.

2) breaking them apart

Q2:

With only 1 electron ionized, there are no electrons available for transition.

Q5:

Metals hold their outer electrons weakly, so don't need as much energy to knock one off as helium, which holds tightly to its two electrons. But after losing one or two electrons, metals need a great deal more energy to lose even more electrons.

Q6:

I picked 4038.00

Q7:

2.9E7 / 4038.00 = 7200

Q10:

1)

2) Both A1, A3, or A5 would be fine.

Q13:

The ones that are too far away and definitely not in the cluster are 7 and 45. Other plausible outliers are 31 and 50.

Q14: should be around 46 pc.

Q15:

ID	RA	Dec	Class	m	M	m-M d(pc)	
4	4 33 50.92	+14 50 39.92	A8	4.7	2.4	2.3	29
7	4 23 59.76	+24 18 03.56	B3	6.4	-1.4	7.8	300+
10	4 26 20.74	+15 37 05.77	A8	4.5	2.4	2.1	27
13	4 38 09.61	+12 30 38.70	A3	4.3	1.5	2.8	36
14	4 39 09.28	+15 47 58.00	A5	5.1	2.0	3.1	42
23	4 21 32.44	+18 25 02.80	F5	6.8	3.7	3.1	42
31	4 31 10.99	+14 41 23.20	F5	8.3	3.7	4.6	82
40	4 39 51.12	+12 43 42.10	K5	10.1	6.7	3.4	47
45	4 16 03.58	+18 51 33.12	A9	13.5	2.7	10.7	300+
50	4 22 30.04	+10 26 04.65	M0	12.6	8.4	4.2	70