Team Name: _____

Team Number: _____   Score: _____/71pts

Rank: _____

Astronomy Answer Key
2014 Solon Invitational

#	Ans		#	Ans		#	Ans
1	E		21	C		41	C
2	E		22	C		42	B
3	D		23	A		43	C
4	A		24	B		44	B
5	C		25	A		45	A
6	C		26	D		46	B
7	A		27	B		47	E
8	C		28	D		48	C
9	C		29	A		49	B
10	A		30	D		50	A
11	C		31	C		51	B
12	A		32	B		52	B
13	C		33	A		53	B
14	D		34	B		54	B
15	A		35	B		55	C
16	B		36	C		56	6310 pc
17	A		37	B		57	7.49ly
18	B		38	A		58	9.55Mpc
19	C		39	C		59	accept any number between 220-250 pc
20	D		40	A			
						60	C

61	D	B	F	A	E	C	
	Coolest	--->	---->	---->	---->	Hottest	

Help for calculations:									

56. The spectrum of a 14 magnitude. What is the distance to the star in parsecs?

		m-M = 5log			3pts – correct answer		
		M=m- 5log			2pts if formula &/or 0.0 & 14 used correctly		
		0.0			1pt if formula correct		
		5log					
		Log$_{10}$					
		d/10 = 10					
		d = 6310 pc					

57. A star has a parallax of 0.435 arcsec. What is the distance to this star in light years?

		d = 1/p			2pts – correct answer in LY		
		d = 1/0.435 = 2.299 parsecs (pc)			no partial credit		
		d = 2.299 pc x 3.26 ly = **7.49 light years (ly)**					

58. A Type Ia supernova is discovered in a distant galaxy. At maximum brilliance, the supernova reaches an apparent magnitude of +10. How far away is the galaxy?

		m-M = 5log			4pts – correct answer		
		10 – (-19.9) = 5log			2pts – if formula & know -19.9 assumed M		
		29.9 = 5log			1pt – formula or -19.9 listed		
		29.9/5 = log					
		5.98 = log					
		9.55 Mpc or 9,549,926 pc					

59. A star is found to have the light curve shown in Image ____. What is the distance to this star, in parsecs?

		m-M = 5log					
		7.6 – (0.75) = 5log					
		6.85 / 5 = log			4pts – correct answer		
		1.37 = log			2pts – if formula & know +.75 assumed M		
		23.4 = d/10			1pt – if formula or +0.75 listed		
		234 pc					
		accept any range between 220-250					