Michigan Science Olympiad

2026 State Tournament

April 25th 2026

Astronomy C

Answer Sheet

Section A: __/38

Section B: __/40

Section C: __/38

Total: __/116

Name(s): _____

School: _____ Team #: C___

Section A (General)

[38 pts total]

1		7		13		19		25	
2		8		14		20		26	
3		9		15		21		27	
4		10		16		22		28	
5		11		17		23		29	
6		12		18		24		30	

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31) What is characteristic about the cores of protostars on the blue vertical drops in the graph? [2]

Questions 32 - 34 will refer to Image C on the image sheet.

Assume m_1 to be the primary star and that eclipses enclose an entire disk

32) Determine the luminosity of m_2. [2, TB]

33) What spectral class and evolutionary type would you expect m_1 to be, based on its properties? [2]

34) Convert the total system luminosity to an absolute magnitude [2]

Section B (DSO)

[40 pts total]

Question 1: Orion Nebula: [8 pts total]	
a [1]	
b [1]	
c [3]	
d [1]	
e [2]	

Question 2: Image B: [8 pts total]	
a [1]	
b [2]	
c [2]	
d [1]	
e [2]	

Question 3: Helix Nebula (NGC 7293): [9 pts total]	
a [3,TB]	
b [1]	
c [1]	
d [3]	
e [1]	

Question 4: WDJ181058.67+311940.94: [10 pts total]	
a [1]	
b [2]	
c [2]	
d [2,TB]	
e [3]	

Question 5: Mira (Omicron Ceti): [5 pts total]	
a [1]	
b [1]	
c [2]	
d [1]	

Section C (Astrophysics)

[38 pts total]

Question 1: Telescopic Resolution: [4 pts total]	
a [2]	
b [2]	

Question 2: Neutron Star Spindown: [18 pts total]	
a [1]	

b [3]	
c [1]	
d [2]	
e [1]	
f [1]	

g [1]	
h [2]	
i [1]	
j [2]	
k [3,TB]	

Question 3: Pleiades Cluster Dynamics: [16 pts total]	
a [1]	

b [1]	
c [2]	
d [2]	
e [2]	
f [2,TB]	

g [3]	
h [3]	