

2008 - Astronomy Science Olympiad - C

(high school - 18 teams)

ANSWERS!!!

DSO ID section:

- (1) 1. G11.2-0.3
- (1) 2. Supernova Remnant
- (1) 3. A Pulsar
- (1) 4. 386 AD, Chinese astronomers
- (1) 5. DEM L71
- (1) 6. Supernova Remnant
- (1) 7. V838 Mon
- (1) 8. HST / ACS
- (3) 9. [by trig, object is 0.3 parsecs across, and light goes 0.15 pc in 180 days]

HR Diagram questions

- (1) 10. D
- (1) 11. B
- (1) 12. C
- (1) 13. E
- (1) 14. G or BCG
- (1) 15. A or AD
- (1) 16. A or AB
- (1) 17. B
- (1) 18. 5 magnitudes, so a factor of 100

Light Curves I

- (1) 19. 5.5
- (1) 20. Cepheid
- (2) 21. A
- (2) 22. C

More questions:

- (1) 23. B
- (1) 24. B
- (1) 25. C
- (1) 26. A
- (1) 27. O
- (1) 28. M
- (1) 29. B
- (1) 30. M
- (1) 31. A D E F G
- (1) 32. A

Long question 1:

- (2) 33. D
- (2) 34. 6 days(+/-1), 10 days(+/- 1)
- (4) 35. 0.065 +/- 0.01 AU, 0.091 +/- 0.01 AU
- (1) 36. B
- (1) 37. 31 days (+/- 3)
- (1) 38. B
- (2) 39. A

Long question 2:

- (1) 40. 4 days
- (1) 41. 6.4 mag
- (1) 42. 7 days
- (1) 43. 5.4 mag
- (2) 44. 4 mag
- (2) 45. 3 mag
- (1) 46. 5 days
- (2) 47. ~3.5
- (1) 48. 7.4
- (3) 49. $m-M = 4$, so $d = 63$ pc or 205 ly
- (1) 50. $p'' = 1/d[\text{pc}]$, so $1/63$ arcsec, = 0.016"
- (1) 51. No.
- (1) 52. 2 days
- (3) 53. 5350K, 5500K, 5700K
- (2) 54. 34%
- (1) 55. 5083 angstroms
- (1) 56. Green