問答題 (100 %)

1. How can astronomer dig out important information from star light ? (10 %)
2. What evidence do we have that the interstellar medium contains both gas and dust ? (10 %)
3. Make a scale skelch of our galaxy in cross section. Include the disk, sun, nucleus, halo, and some globular clusters and open clusters. (8 %)
   Could you explain why globular clusters and open clusters are located on different area of our galaxy. (7 %)
4. Explain in detail why we expect neutron stars to be hot , spin fast, and have strong magnetic fields. (10 %)
5. (A) Explain how the Hubble law permits us to estimate the distances to galaxies ?(10 %)
   (B) The best measurements of distance and velocity suggest that H (the Hubble constant) is approximately equal to 70 km/sec/Mpc. The Virgo cluster of galaxies has a radial velocity of 1180 km/sec/Mpc. What is its distance ? (5 %)
6. How does the solar nebula theory explain our solar system's formation ? (You may draw a diagram to explain it.) (10 %)
7. What is the significance of the Hubble Space Telescope' s mirror been corrected ? (10 %)
8. (A) δ Cephei has an apparent magnitude of about 4 and a period of 5.4 days. What are its absolute magnitude, distance modulus, and distance ? (10 %)
   (B) A star cluster contains RR Lyrae stars with an apparent magnitude of about 10. How far away is the cluster ? (5 %)
   (C) The brightest variable stars in a distant galaxy have an apparent magnitude of about 19. How far away is the galaxy ? (5 %)
   (Refer to following Period-Luminosity diagram)