M.Sc. - I (Physics) (NEP Pattern) Semester-I

NEP-236-2 / 01MSCPH4.2 - DSE-II Paper-IV - Astrophysics

P. Pages : 2 **GUG/W/24/15138**

Time : Three Hours * 6 0 2 1 * Max. Marks : 80

Either:

1. a) Explain with the diagram right ascension and declination on celestial sphere. **8**

b) Explain altitude and azimuth by considering the observer on the surface of earth and be the centre of the celestial sphere. **8**

OR

e) With the help of appropriate diagram explain the hour angle. **8**

f) Describe the Sidereal time and mean solar time. **8**

Either:

2. a) What is solar system? How did the solar system form? What are the planets on the solar system? **8**

b) Explain the Earth's moon system. What is the real name of Earth's moon system? How was Earth's moon system formed? **8**

OR

e) Write short note on- **8**

i) Asteroids

ii) Meteors

f) What are comets? Explain the origin of Comets and its orbit. State the different types of Comets. **8**

Either:

3. a) Why are X rays and Gamma rays used in space telescope? Which telescope uses the Gamma rays? Explain its Parts. **8**

b) Explain the functioning of Schmidt Telescope. **8**

OR

e) Explain the mounting system of Telescope. **8**

f) Describe the sky chart and explain its importance. **8**

Either:

4. a) What is the range of solar spectrum? State its importance. Why the solar spectrum is called Frauenhofer spectrum? **8**

b) Explain the energy transport in sun by radiation and convection. **8**

OR

e) Explain the photon diffusion in sun. Define and give the equation for photon diffusion time scale and Kelvin time scale. **8**

f) Derive Thomson scattering formula for differential scattering cross section. What information can be obtained from the derived equation? **8**

5. Attempt all the followings-

a) Explain the standard candles method for distance measurement with appropriate candle chart. **4**

b) Give a short note on extra solar planets and their detection. **4**

c) What is active and adaptive optics in astronomy? **4**

d) Explain transition region. **4**

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