

SECTION - B (25 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

11. a Prove that the latitude of a place is equal to the altitude of the celestial pole.

OR

b Find the condition that twilight may last throughout night.

12. a Trace the variations in the durations of day and night for a place in the North frigid zone.

OR

b Find the tangent formula for refraction.

13. a Compare Geometric parallax and refraction.

OR

b Explain briefly about Parsec and Light year.

14. a Prove that $\tan \frac{v}{2} = \sqrt{\frac{1+e}{1-e}} \tan \frac{u}{2}$.

OR

b Define Morning and Evening. Find the relation between them.

15. a Find the relation between Sidereal and synodic months.

OR

b Find the condition for the occurrence of a solar eclipse.

SECTION - C (40 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

16. a Explain the equatorial system and horizontal system of co-ordinates used to fix the position of any body in the celestial sphere.

OR

b Find the time taken by a star to rise from a small vertical distance x'' below the horizon.17. a Find the duration of perpetual day in a place of latitude $\varphi > 90^\circ - \omega$.

OR

b Find the effect of refraction on the R.A and declination of a star.

18. a Find the effect of parallax on the longitude and latitude of a star.

OR

b Determine the constant of aberration.

19. a Derive Kepler's equation.

OR

b Derive stationary values of equation of time.

20. a Explain the lunar and solar eclipse.

OR

b Calculate the major and minor ecliptic limits.

Z-Z-Z

END