

MANIDHANAHEYAM FREE IAS ACADEMY – TNPSC GROUP II & IIA
UNIT - I
PHYSICS - PHYSICAL QUANTITIES

1. Definition (6 marks)

i) **Astronomical unit**

ii) **Light year**

iii) **Astronomical radius**

- ✓ **Astronomical unit (AU):** It is the mean distance of the centre of the Sun from the centre of the Earth. $1 \text{ AU} = 1.496 \times 10^{11} \text{ m}$
- ✓ **Light year:** It is the distance travelled by light in one year in vacuum and it is equal to $9.46 \times 10^{15} \text{ m}$.
- ✓ **Parsec:** Parsec is the unit of distance used to measure astronomical objects outside the solar system.

1 Parsec = 3.26 light year.

2. Differentiate between GMT and IST. (6 marks)

- ✓ **Greenwich Mean Time (GMT)** is the mean solar time at the Royal Observatory, located at Greenwich in London. It is measured at the longitude of zero degree. The Earth is divided into 24 zones, each of a width of 15 degree longitude. These regions are called as 'Time Zones'. Time difference between two adjacent time zones is 1 hour.

Indian Standard Time (IST)

- ✓ The location of Mirzapur in Uttar Pradesh is taken as the reference longitude of the Indian Standard Time. It is located at 82.5 degree longitude. $\text{IST} = \text{GMT} + 5:30 \text{ hours}$.