

Date: _____

Day: _____

Question 1. Explain the following ;

- (i) Astronomy
- (ii) Solar System
- (iii) Solar System Units
- (iv) Galaxy
- (v) Universe

(i) Astronomy

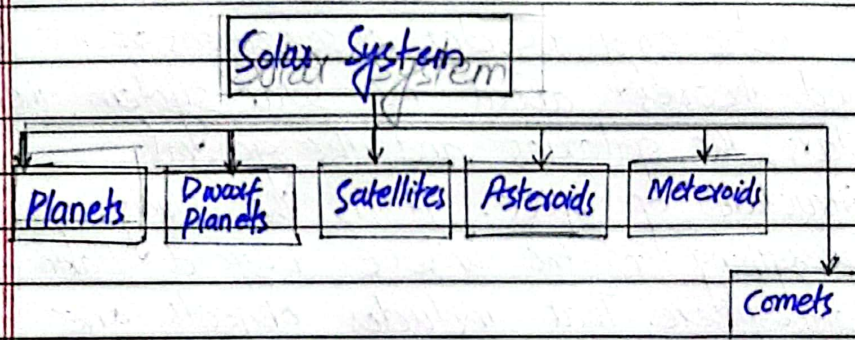
"Astronomy is the study of the universe and the celestial bodies, gas and dust within it."

Astronomy includes observations and theories about the solar system, the stars, the galaxies and the general structure of space. It is the study of everything in the universe beyond Earth's atmosphere. That includes objects one can see with naked eyes, like the Sun and the moon, the planets and the stars. It also include objects ~~we~~ one can only see with telescope or other instruments like faraway galaxies and tiny particles.

(ii) Solar System

Solar System consists of the Sun, planets, dwarf planets, moons, an asteroid belt, comets, meteors and other objects."

The Sun is the centre of our solar system and all other objects in the solar system orbit the Sun. The Solar System is elliptical in shape, which means that it is shaped like an egg. The Sun contains more than 99% of the total mass.



(iii) Solar System Units

Solar System units are composed of International Astronomical Units (IAU) for 1976 and the International System of Units (SI units). These systems have been significantly updated over time. Solar System units is a tri-dimensional system that defines unit of length, mass and time only.

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a- Astronomical Unit of Time

The Astronomical Unit of time is the day, defined as 86400 seconds. Its symbol is 'D'.

b- Astronomical Unit of Mass

The Astronomical Unit of mass is the solar mass. The solar mass, $1.98892 \times 10^{30} \text{ kg}$, is a standard way to express mass in astronomy. It is equal to the mass of the Sun.

c- Astronomical Unit of length

It is defined as the average distance between the Earth and the Sun, and it is approximately 150 million kilometers. Astronomical unit (AU), light-year and parsec are the units for measuring huge distances.

(iv) Galaxy

"A gravitationally bound system of stars, stellar remnants, interstellar gas, dust and dark matter."

The word 'galaxy' is derived from Greek word 'galaxias' meaning 'milky'. Astronomer estimates that there are about 100 to 200 galaxies exist in the observable universe.

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Based on Size

Dwarf galaxy

↓
few thousand stars

Giant galaxy

↓
trillions of stars

Based on visual morphology

↓
Elliptical

↓
Spiral

↓
Irregular

Examples

↓
Milky Way

↓
Andromeda

(v) Universe

"The vast empty space that consists of stars, solar system galaxies etc. is called Universe."

Universe is the totality of everything that exists, including all matter, energy, the planets, stars, galaxies and the content of intergalactic space. It is considered to be 13.8 billion years old. Scientists also think that the universe is continuously expanding, ~~ma~~ becoming less compact day-by-day. There also exists the unob-
servable part of the universe, that is yet to be discovered.