

Date: _____

Salihu Aziz.

Day: _____

Question No 1:

What is a galaxy
and earth belongs to which galaxy?

Answer:

The word galaxy is derived from a greek word "galaxias", which means "milky", a reference to the Milky Way. Milky way and Andromeda are the examples of galaxy.

Definition:

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

Earth belongs to which galaxy:

There are many galaxies in the universe.

Andromeda is the first biggest galaxy and

the Milky Way is the second biggest

galaxy in our universe. Earth belongs

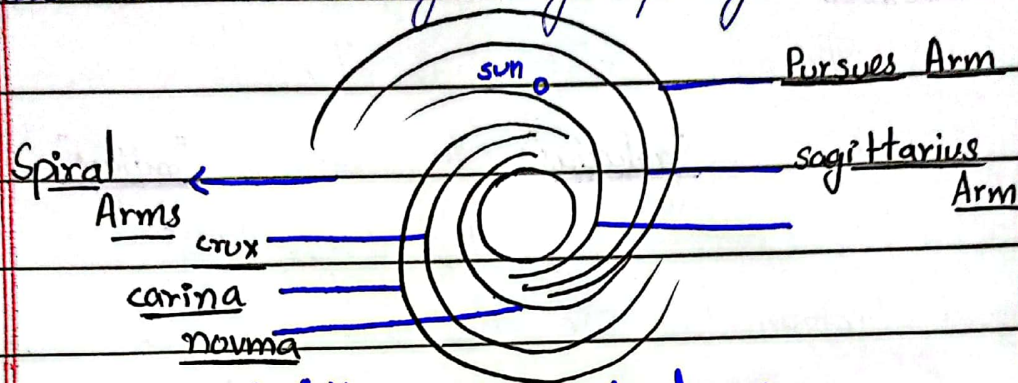
to Milky way galaxy

Milky Way galaxy is the large, disk-shaped galaxy that includes our solar system.

A spiral galaxy is shaped like a disk, usually with a bulge in the centre and with arms that spiral outwards as the galaxy

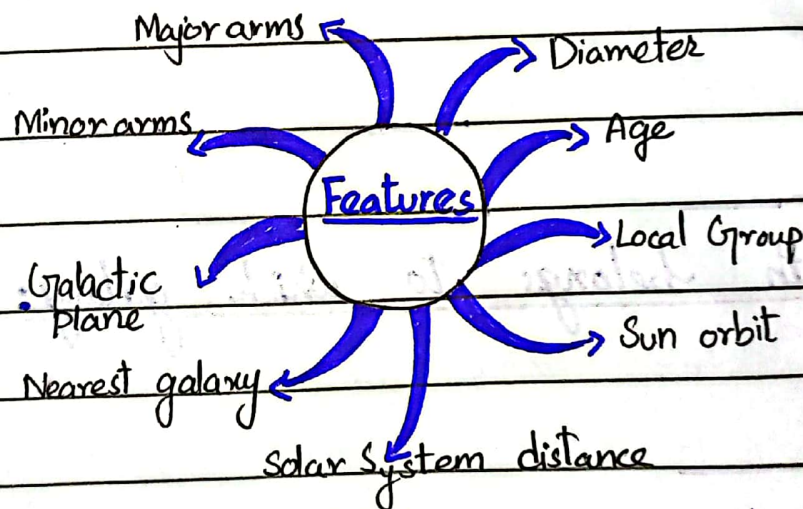
Date: _____

rotates. In addition to the Sun, the Milky Way contains about 200-400 billion other stars. Most of the stars that we can see are in the Milky Way Galaxy.



Milky Way Galaxy

Main features of Milky Way Galaxy:



The diameter of Milky Way is about 100,000 light years. This spiral galaxy formed about 13.7 billion years ago. The major arms of the Milky Way galaxy are the Pursues Arm, Sagittarius, Centaurus Arm and Cygnus Arm. The region in space occupied by Milky Way is called Galactic Plane. Nearest galaxy to Milky Way Galaxy is

Andromeda. Our Milky Way is the part of cluster of three dozens of galaxies called "Local Group". Our Solar System is in a minor arm called the Orion Spur / Orion Arm. Sun takes roughly 250 million years to orbit around the Milky Way.

Question No 2:

Briefly describe the most popular and accepted theory about the origin in the universe.

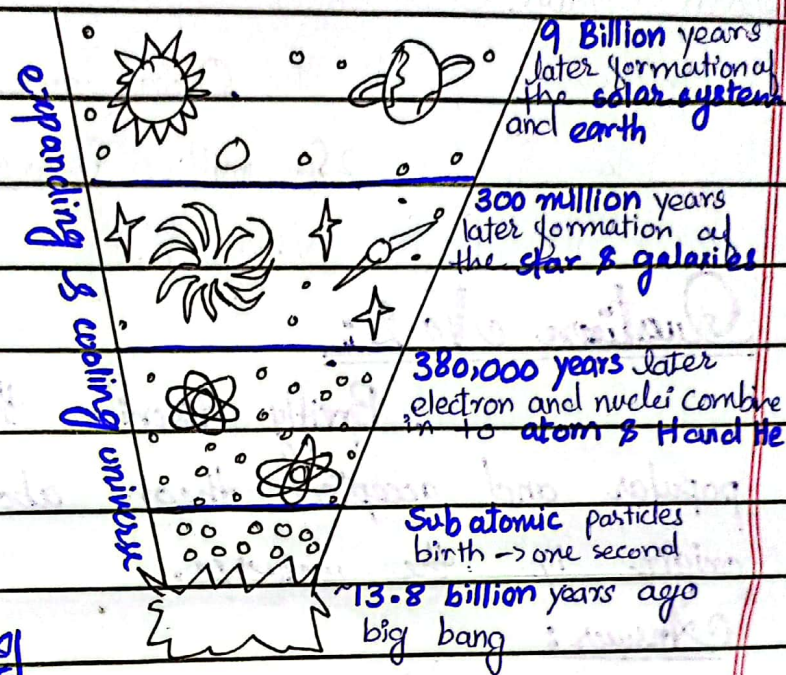
Answer:

The vast empty space around us that consists of stars, solar system, galaxies etc. is called Universe. The most famous theory about the origin of the Universe is Big Bang Theory. It talks about the universe as we know it starting with a small singularity, then inflating over the next approximately 13.7 billion years to the cosmos that we know today. Most astronomers believe the universe began in a Big Bang about 13.7 billion years ago. At that time, the entire universe was inside a bubble that was named as singularity.

Date: _____

Day: _____

It was hotter and denser than anything we can imagine -



Big Bang

Then it suddenly exploded - The universe that we know was born. Time, space and matter all began with the Big Bang.

Within a tiny fraction of a second, the universe expanded incredibly fast. And it kept on growing at a fantastic rate.

It is still expanding today. As the universe expanded and radiated energy, changed into particles of matter and anti-matter - These two opposite types of matter destroyed each other. But some stable matter survived. More stable particles are protons and neutrons.

Date: _____

Day: _____

started to form when the universe was one second old. Over the next three minutes, the temperature dropped below 1 billion degrees celsius. It was now cool for protons and neutrons to come together, forming H and He. Then, after 3 million years ago atomic nuclei capture electrons to form atoms. The universe was filled with clouds of hydrogen and helium gas. These clouds of gases and dust formed all celestial bodies.

Question No 3:

How can the sun have such a strong gravitational field if its made of gases?

Answer:

The sun's strong gravitational field cause of its immense mass, not of its immense gaseous state. Gravity is a fundamental property of mass, and while the sun is made of hot gases, its enormous size and the large number of constituent particles gives it a huge number of mass.

Gravitational Field:

Every body of matter in this universe attracts other bodies of matter toward it self with a force known as gravitational force.

Factor Affecting Gravitational Field:

$$F \propto \frac{m}{d^2}$$

Mass is directly proportional to the gravitational field or gravitational force.

Although the sun is made up of a huge amount of gases, it does not matter if a substance is comprised of gas or a liquid or a solid.

The only physical factor that depends is mass, and the sun is 99.1% of the solar system mass, and the sun is massive than all the planets of the solar system. Thus the sun has way more gravitational field through which the sun attract all planets toward it.

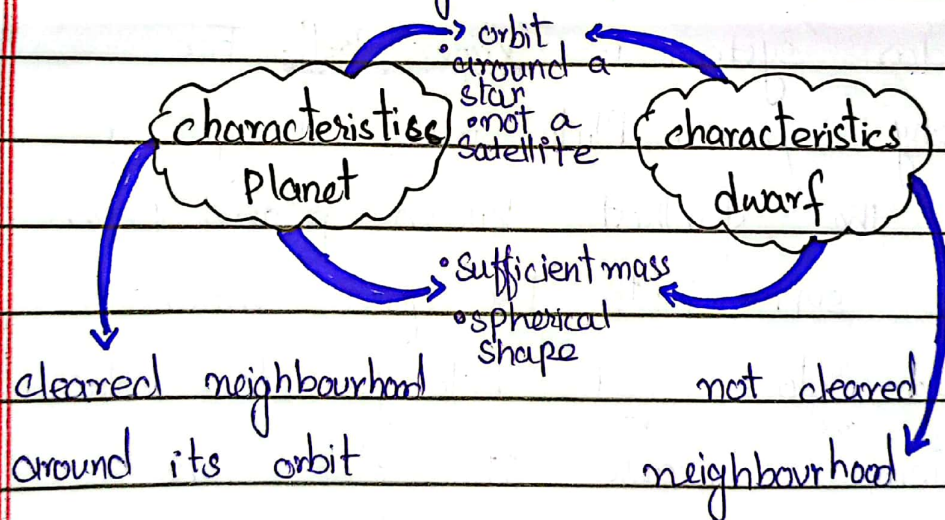
Question No 4:

Do you think pluto is still 9th planet of our solar system? If yes, how and if not why?

Answer:

No, I do not think pluto is still 9th planet of our solar system.

The International Astronomical Union (IAU) has defined a planet as a celestial body that and dwarf planet as a celestial body that



The only difference between the planet and dwarf planet is the area surrounding each celestial body. A dwarf planet has not cleared the area around its orbit, while a planet has. Dwarf planet could not do so because of small size and

Date: _____

Day: _____

less gravitational pull. As pluto does
not fulfill the last condition of
planets and also two objects in the
Kuiper Belt are within its orbit
and it is unable to attract them.

I think
it is
~~not~~
unnecessary

There are five officially recognized
dwarf planets in our solar system.

Pluto is one of them. With the
exception of Ceres, which is located
in the asteroid belt, the other dwarf
planets are found in the outer
solar system i.e. Kuiper Belt. For

many years, Pluto was thought of
as the farthest known planet from
the sun. Pluto has five moons.

Pluto does not belongs to solar
system ^{and not planet} because it does not

I think
so it is
also
unnecessary

fulfill all conditions of definition
of planet, and also it does not
attract objects in the Kuiper Belt.