Chapter 16: The Universe

EXERCISE [PAGE 118]

Exercise | Q 1.1 | Page 118
Name the birth place of stars.

SOLUTION

Birth place of stars: Nebula

Exercise | Q 1.2 | Page 118
Name the biggest planet in the solar system

SOLUTION

Biggest planet in the solar system: Jupiter

Exercise | Q 1.3 | Page 118
Name the galaxy which is our neighbour.

SOLUTION

The galaxy which is our neighbour: Andromeda

Exercise | Q 1.4 | Page 118
Name the brightest planet in the solar system.

SOLUTION

Brightest planet in the solar system: Venus

Exercise | Q 1.5 | Page 118
Name the planet with largest number of satellites.

SOLUTION

Planet with largest number of satellites: Jupiter

Exercise | Q 1.6 | Page 118
Name the planets without a single satellite.

SOLUTION

Planets without a single satellite: Mercury and Venus

Exercise | Q 1.7 | Page 118
Name the planet with a rotation different from other planets.
SOLUTION

Planet with a rotation different from other planets: Venus and Uranus.

Exercise | Q 1.8 | Page 118
Name the celestial body that carries a tail along.

SOLUTION

A celestial body that carries a tail along: Comets

Exercise | Q 2.1 | Page 118
Fill in the blank.
The group of galaxies of which our Milky Way is a part is called _____.

SOLUTION

The group of galaxies of which our Milky Way is a part is called **'Local Group'.**

Exercise | Q 2.2 | Page 118
Fill in the blank.
Comets are made of _____.

SOLUTION

Comets are made of **ice and dust particles.**

Exercise | Q 2.3 | Page 118
Fill in the blank.
The planet _____ appears as if it is rolling along its orbit.

SOLUTION

The planet **Uranus** appears as if it is rolling along its orbit.

Exercise | Q 2.4 | Page 118
Fill in the blank.
_____ is a stormy planet.

SOLUTION

Jupiter is a stormy planet.

Exercise | Q 2.5 | Page 118
Fill in the blank.
The Pole Star is the best example of a _____ type of star.

SOLUTION

The Pole Star is the best example of a **variable** type of star.

Exercise | Q 3.1 | Page 118
Say if the statement given below is right or wrong. Rewrite the statement after correcting them.
Venus is the planet closest to the sun.

1. Correct
2. **Incorrect**

SOLUTION

No, the statement is **incorrect**.

Mercury is the planet closest to the Sun.

Exercise | Q 3.2 | Page 118

Say if the statement given below is right or wrong. Rewrite the statement after correcting them.

Mercury is called a stormy planet.

1. Correct
2. **Incorrect**

SOLUTION

No, the statement is **incorrect**.

Jupiter is called a stormy planet.

Exercise | Q 3.3 | Page 118

Say if the statement given below is right or wrong. Rewrite the statement after correcting them.

Jupiter is the biggest planet.

1. **correct**
2. incorrect

SOLUTION

Yes, Jupiter is the biggest planet.

Exercise | Q 4.1 | Page 118

Answer the following:

What is a special characteristic of the planet Mars?

SOLUTION

The special characteristic of planet Mars is that it is red in colour. This is due to the presence of iron in its soil.

Exercise | Q 4.2 | Page 118

Answer the following:

What are the types of galaxies?

SOLUTION

Various types of galaxies which are identified according to their shapes are:

- **Spiral galaxy:** These are the spiral structures that extend from the centre into the disc. It consists of stars, gas and dust in a bulge at the centre and in the extended spiral arms.

- **Elliptical galaxy:** These galaxies have nearly ellipsoidal shape which consists of stars, gas and dust.

- **Irregular galaxies:** These galaxies don't have a distinct regular shape.

- **Barred spiral galaxies:** These are spiral galaxies with a central bar-shaped structure composed of stars.

Exercise | Q 4.3 | Page 118

Answer the following:
Which celestial bodies does a galaxy include?

SOLUTION

A galaxy includes stars, cluster of stars, nebulae, clouds of gases and dusts, dead stars, newly born stars etc.

Exercise | Q 4.4 | Page 118
Answer the following:
Name the different types of stars.

SOLUTION

The different types of stars in the universe are stated below:
Sun-like Stars: These are particularly similar to the Sun in size but there is a lot of variation in terms of temperature. Examples are Alpha Centurai, Tau Ceti etc.

Red Giants: These stars do not have as hot outer layer as that of the Sun with temperature ranging from 3000 ^{o}C to 4000 ^{o}C but they have a very high luminance than the Sun. They are red in color and their diameter is 10 to 100 times that of the Sun.

Super Nova: They are larger and even brighter as compared to the red giant stars and even the Sun. They are also considered as the primary source of heavy elements in the universe.

Binary or Twin Stars: A pair of two stars in which one revolves around the other or they both revolve around a common centre is known as binary or twin stars.

Variable Stars: These stars have a variable shape and brightness i.e it keeps on changing whenever they expand or contract. Their brightness decreases when they expand and increases when they contract. Example is Pole Star.

Exercise | Q 4.5 | Page 118

Answer the following:
What are the types of comets and on what basis are they classified?

SOLUTION

Comets are the solar system bodies that are usually spherical in shape and develop tail when they come near the Sun. Comets become visible when they are close to the Sun and the Earth.

Comets can be categorized into two groups depending on how long they take to complete one revolution around the sun. These are:

- **Long Period Comets**: These comets complete one revolution around the Sun in 200 and more years. Great Comet of 1843 is one of the examples of this type.

- **Short Period Comets**: These comets complete one revolution around the Sun in years less than 200. One of the examples is Halley's comet that takes 76 years to complete the revolution. It last appeared in 1985.

Exercise | Q 4.6 | Page 118
Answer the following:
What is the difference between meteors and meteorites?

SOLUTION

Meteors: These are rocky pieces originating from the asteroid belt and enter the Earth's atmosphere as a result of its gravitational pull. On entering the Earth's atmosphere, they acquire very high speeds. These high speeds of meteors cause friction with the Earth's atmosphere and thus the meteors heat up and evaporate completely. Meteors are also known as shooting stars.

Meteorites: These are the unburnt part of meteors which fall to the surface of Earth on ocassions when the meteors do not burn completely in the atmosphere itself.

Exercise | Q 4.7 | Page 118
Answer the following:
What are the characteristics of the planet Neptune ?

SOLUTION

Following are the characteristics of planet Neptune:

- A season on this planet lasts for about 41 years.
- Wind blows with extremely high speed on this planet.

Exercise | Q 5 | Page 118

Match the following:

Group A	Group B
(1) Galaxy	(a) From east to west
(2) Comet	(b) 33 satellites
(3) Sun-like star	(c) Spiral
(4) Saturn	(d) Sirius
(5) Venus	(e) Halley

SOLUTION

Group A	Answers
(1) Galaxy	(c) Spiral
(2) Comet	(e) Halley
(3) Sun-like star	(d) Sirius
(4) Saturn	(b) 33 satellites
(5) Venus	(a) From east to west