

Chapter 17: Stars and the Solar System

Multiple Choice Questions

Page-199

1. (b)
2. (b)

Multiple Choice Questions

Page-202

1. (a)
2. (c)

Multiple Choice Questions

Page-205

1. (c)
2. (b)

Multiple Choice Questions

Page-208

1. (a)
2. (b)

EXERCISE

A. Tick (✓) the correct options.

1. (a)
2. (b)
3. (b)
4. (b)
5. (a)

B. Look at the figure [Fig. (a)] given alongside and tick (✓) the correct options.

1. (a)
2. (c)

C. Fill in the blanks.

1. Sirius
2. Hunter
3. Halley's
4. meteorite
5. Great Bear constellation
6. the southern hemisphere
7. *Purnima*
8. same

D. Very Short Answer Questions.

1. (a) 123°C (b) -233°C
2. It is the distance travelled by the light in a year.
1 light year = 9.46×10^{12} kilometres
3. Jupiter
4. We can never see the backside of the moon from the Earth because the moon rotates about its axis in about the same time that it takes to orbit the Earth.
5. A comet is a small body of ice and dust that moves around the Sun in highly elliptical orbit.
6. Pluto and Eris

E. Short Answer Type-I Questions.

1. The Sun appears to be larger and brighter because it is much nearer to the Earth than any other star.
2. Mars is called red planet because its red colour comes from iron oxide (rust) in its soil.
3. The Pole Star appears stationary as seen from the Earth because it lies close to the axis of rotation of the earth.
4. Western sky
5. Venus and Uranus
6. Asteroids are small irregular heavenly bodies of rock and metals which revolve around the Sun in the gap between the orbits of Mars and Jupiter.

F. Short Answer Type-II Questions.

1. (i) It is clearly seen in the northern part of the sky in July.
(ii) There are seven prominent stars in this constellation which form the shape of a dipper.
(iii) At the end of the tail of Ursa minor is the Pole Star.
2. The Earth is the only planet in the solar system on which life is known to exist. Conditions for existence of life are (write any three) :
(i) Earth is at the right distance from the Sun.
(ii) It has right temperature range.
(iii) Presence of water
(iv) A suitable atmosphere
(v) A blanket of ozone

3.

| S. No. | Parameters | Meteors | Meteorites |
|--------|------------|---|---|
| 1. | Burning | Meteors burn completely before they reach the surface of the Earth. | Meteorites do not burn completely on entering the Earth's atmosphere and land on Earth's surface. |
| 2. | Size | The size of this heavenly body is very small as compared to the size of meteorites. | The size of this heavenly body is very big. |
| 3. | Damage | It does not cause any damage. | It can create a large crater and cause a lot of damage on the Earth's surface. |

4. (a) (i) Planets are solid heavenly bodies which revolve around the Sun in closed elliptical orbits.
 (ii) A planet has no light of its own. It shines because it reflects the light of the Sun.
 (b) We learn to be disciplined, punctual and focused in life like these heavenly bodies.

G. Long Answer Questions.

1. (a) **New moon:** When the moon is in between the Earth and the Sun then the side of the moon, lit by the Sun is away from the Earth and the side of the moon which is towards the Earth is dark. This is called a new moon. New moon night is called 'Amavasya' in India.
 (b) **Crescent moon:** The phase of moon when a small portion of moon is lit by Sun is called a crescent moon.
 (c) **First quarter moon:** After 7 days of new moon, the Sun lights half portion of the moon. So, we are able to see half moon. It is called first quarter moon.
 (d) **Gibbous moon:** When we see more than half of the moon, it is called the gibbous moon (at 10th day of new moon).
 (e) **Full moon:** After 14 days of new moon night, we are able to see full part of moon facing towards the Earth. It is also called as 'Purnima' in India.
 2. (a) An artificial satellite is a human-made object that has been placed into the orbit around the Earth or some other planets to perform specific functions.

(b)

| S. No. | Parameters | Planets | Satellites |
|--------|------------------|---|--|
| (i) | Type of body | Planets are natural heavenly bodies. | Satellites are both natural and artificial human-made objects. |
| (ii) | Revolution | Planets revolve around the Sun. | Satellites revolve around the planets. |
| (iii) | Size of the body | Size of the planets is large as compared to size of satellites. | Size of the satellites is very small as compared to planets. |

- (c) Three uses of artificial satellites are:
 (i) They are used for weather forecasting.
 (ii) They are used for transmitting radio and television signals.
 (iii) They are used for collecting information about other planets and about the outer space.

H. HOTS (Higher Order Thinking Skills) Questions.

1. Given $R_j = 11R_E$

Volume of Jupiter, $V_j = \frac{4}{3}\pi R_j^3$

$\therefore R_j = 11 R_E$

So, $V_j = \frac{4}{3}\pi (11R_E)^3$

$$V_j = \frac{4\pi}{3} \times 11 \times 11 \times 11 \times R_E^3 = 1331 \times \frac{4}{3}\pi R_E^3$$

$\therefore V_j = 1331(V_E) \quad \left(\because \text{Volume of Earth, } V_E = \frac{4}{3}\pi R_E^3 \right)$

Hence, Jupiter can accommodate 1331 Earths.

2. A constellation is not the part of solar system because the solar system consists of Sun, the eight planets, their satellites, the celestial bodies like meteors, comets and asteroids under the effect of Sun's gravity. Other celestial bodies around Earth appear as the component of the universe. As stars are the components of universe, solar system is also its component.