13 Our Home: Earth

Fill in the Blanks

1. Earth supports life mainly because it lies in the _____ zone of the Sun.
2. The thin outer layer of Earth where life exists is called the _____.
3. Venus is the hottest planet due to its thick _____ atmosphere.
4. The trapping of heat by gases like carbon dioxide is called the _____ effect.
5. Earth appears blue from space because most of its surface is covered with _____.
6. The solid part of the Earth made up of rocks and soil is known as the _____.
7. The _____ layer protects Earth from harmful ultraviolet rays.
8. The Earth behaves like a giant _____ due to its magnetic field.
9. Vegetative propagation is a type of _____ reproduction.
10. Climate change, pollution, and biodiversity loss together form the _____ planetary crisis.

True and False

1. Mercury is the hottest planet.
2. Ozone layer protects us from UV radiation.
3. All planets have thick atmospheres.
4. Asexual reproduction requires two parents.
5. Climate change is mainly caused by greenhouse gases.

Multiple Choice Questions (MCQs)

1. Which factor mainly allows water to remain in liquid form on Earth?
(a) Earth's rotation (b) Earth's distance from the Sun
(c) Earth's size (d) Earth's magnetic field

2. Which planet is known as the hottest planet in the solar system?
(a) Mercury (b) Venus (c) Mars (d) Jupiter

3. The region around a star where life-supporting conditions exist is called:
(a) Orbit zone (b) Radiation zone (c) Habitable zone (d) Magnetic zone

4. Which gas is most responsible for the greenhouse effect on Earth?
(a) Oxygen (b) Nitrogen (c) Carbon dioxide (d) Hydrogen

5. Which layer of Earth protects us from cosmic rays and solar wind?
(a) Ozone layer (b) Crust (c) Magnetic field (d) Hydrosphere

6. Which of the following is an example of asexual reproduction?
(a) Seed formation (b) Fertilisation (c) Vegetative propagation (d) Pollination

7. Which part of a flower produces pollen?
(a) Ovule (b) Anther (c) Stigma (d) Sepal

8. Which of the following is NOT a part of Earth's system?
(a) Biosphere (b) Hydrosphere (c) Atmosphere (d) Lithosphere of the Moon

9. Which human activity mainly increases greenhouse gases?
(a) Tree plantation (b) Recycling (c) Burning fossil fuels (d) Rainwater harvesting

10. Which agreement aims to limit global warming to below 1.5°C?
(a) Kyoto Protocol (b) Montreal Protocol (c) Paris Agreement (d) Earth Summit

Short Answer Questions

1. Why is Earth called a unique planet?
2. What is the greenhouse effect?
3. Define the habitable (Goldilocks) zone.
4. Why is Earth's atmosphere important for life?
5. What role does Earth's magnetic field play in protecting life?
6. What is geodiversity?
7. What is vegetative propagation? Give one example.
8. How does photosynthesis help maintain balance in nature?
9. What is meant by biodiversity loss?
10. Name any two threats to life on Earth?

Long Answer Questions

1. Explain why Earth is the only known planet that supports life.
2. Describe how Earth's distance from the Sun helps in sustaining life.
3. Explain the importance of Earth's size and gravity in holding the atmosphere.
4. Describe the role of the ozone layer and magnetic field in protecting life on Earth.
5. Explain how air, water, and sunlight together support life on Earth.
6. Describe asexual reproduction with examples from plants and animals.
7. Explain sexual reproduction in plants with the help of a labelled diagram.
8. How do Earth's four systems - atmosphere, hydrosphere, geosphere, and biosphere - work together to sustain life?
9. Explain the triple planetary crisis and its impact on life on Earth.
10. Discuss the causes and effects of climate change and suggest ways to reduce it.

Answers

Fill in the Blanks

1. habitable
2. crust
3. carbon dioxide
4. greenhouse
5. water
6. geosphere
7. ozone
8. magnet
9. asexual
10. triple

True and False

1. False
2. True
3. False
4. False
5. True

Multiple Choice Questions (MCQs)

1. (b) Earth's distance from the Sun
2. (b) Venus
3. (c) Habitable zone
4. (c) Carbon dioxide
5. (c) Magnetic field
6. (c) Vegetative propagation
7. (b) Anther
8. (d) Lithosphere of the Moon
9. (c) Burning fossil fuels
10. (c) Paris Agreement

Short Answer Questions

Q1. Why is Earth called a unique planet?
Ans: Earth is called a unique planet because it has the right temperature, liquid water, atmosphere, magnetic field, and suitable conditions that support life.

Q2. What is the greenhouse effect?
Ans: The greenhouse effect is the process by which gases like carbon dioxide trap heat in Earth's atmosphere, keeping the planet warm enough to support life.

Q3. Define the habitable (Goldilocks) zone.
Ans: The habitable or Goldilocks zone is the region around a star where temperatures allow water to exist in liquid form, making life possible.

Q4. Why is Earth's atmosphere important for life?
Ans: Earth's atmosphere provides oxygen for breathing, carbon dioxide for photosynthesis, protects from harmful radiation, and helps regulate temperature.

Q5. What role does Earth's magnetic field play in protecting life?
Ans: Earth's magnetic field deflects harmful solar wind and cosmic rays, preventing damage to the atmosphere and living organisms.

Q6. What is geodiversity?
Ans: Geodiversity refers to the variety of landforms, rocks, soils, and geological features on Earth that create different habitats for life.

Q7. What is vegetative propagation? Give one example.
Ans: Vegetative propagation is a type of asexual reproduction in plants where new plants grow from roots, stems, or leaves.
Example: Potato growing from its eyes.

Q8. How does photosynthesis help maintain balance in nature?
Ans: Photosynthesis produces food for plants and releases oxygen, which is essential for respiration in animals, maintaining balance in the atmosphere.

Q9. What is meant by biodiversity loss?
Ans: Biodiversity loss means the reduction in the number and variety of plant and animal species due to habitat destruction, pollution, or climate change.

Q10. Name any two threats to life on Earth.
Ans: Two major threats to life on Earth are climate change and pollution.

Long Answer Questions

Q1. Explain why Earth is the only known planet that supports life.
Ans: Earth supports life because it has the right distance from the Sun, allowing moderate temperatures and liquid water. It has a suitable size and gravity to hold an atmosphere rich in oxygen and carbon dioxide. The ozone layer protects life from harmful ultraviolet rays, and Earth's magnetic field shields it from cosmic radiation. All these factors together make Earth a life-sustaining planet.

Q2. Describe how Earth's distance from the Sun helps in sustaining life.
Ans: Earth lies in the habitable or Goldilocks zone of the Sun, where temperatures are neither too hot nor too cold. This allows water to remain in liquid form, which is essential for all known life forms. If Earth were closer to the Sun, water would evaporate; if farther, it would freeze, making life difficult.

Q3. Explain the importance of Earth's size and gravity in holding the atmosphere.
Ans: Earth's size provides just the right gravitational force to hold its atmosphere. If Earth were smaller, gravity would be weak and gases would escape into space. If it were much larger, gravity would be too strong and could crush living beings. Thus, Earth's size is ideal for sustaining life.

Q4. Describe the role of the ozone layer and magnetic field in protecting life on Earth.
Ans: The ozone layer absorbs harmful ultraviolet rays from the Sun, preventing damage to living cells. Earth's magnetic field deflects charged particles from the solar wind and cosmic rays, protecting the atmosphere from being stripped away and ensuring life can survive.

Q5. Explain how air, water, and sunlight together support life on Earth.
Ans: Air provides oxygen for respiration and carbon dioxide for photosynthesis. Water is essential for all life processes and helps regulate temperature. Sunlight provides energy for photosynthesis, which produces food and oxygen. Together, these elements support all living organisms.

Q6. Describe asexual reproduction with examples from plants and animals.
Ans: Asexual reproduction involves a single parent producing offspring identical to itself. In plants, it occurs through vegetative propagation such as potato, ginger, and money plant. In animals, organisms like amoeba divide by binary fission, and hydra reproduces by budding.

Q7. Explain sexual reproduction in plants.
Ans: In flowering plants, male gametes are present in pollen grains and female gametes in ovules. Pollination transfers pollen to the stigma. Fertilisation occurs when male and female gametes fuse to form a zygote, which

develops into a seed. The ovary develops into a fruit.

Q8. How do Earth's four systems work together to sustain life?
Ans: The atmosphere provides air and regulates temperature, the hydrosphere supplies water, the geosphere provides soil and minerals, and the biosphere includes all living organisms. These systems interact continuously, creating a balanced environment that supports life.

Q9. Explain the triple planetary crisis and its impact on life on Earth.
Ans: The triple planetary crisis includes climate change, biodiversity loss, and pollution. Climate change causes extreme weather and rising sea levels. Biodiversity loss disrupts ecosystems. Pollution damages air, water, and soil. Together, they threaten the survival of life on Earth.

Q10. Discuss the causes and effects of climate change and suggest ways to reduce it.
Ans: Climate change is caused by the release of greenhouse gases from burning fossil fuels, deforestation, and industrial activities. Its effects include global warming, melting glaciers, unpredictable rainfall, and extreme weather. It can be reduced by using renewable energy, conserving forests, recycling, and reducing pollution.