PA1 EXAMINATION - 2025–26
SUBJECT: SCIENCE
CLASS: VI
MARKS: 40
TIME: 1.5 HOURS

The question paper is divided into two sections:

Detailed assessment marks: 10 marks

Descriptive/Subjective type questions: 30 marks.

General Instructions:

i. **This question paper consists of 11 questions in 3 sections.**
ii. **All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.**
iii. **Section A consists of 5 questions carrying 2marks each.**
iv. **Section B consists of 4 questions carrying 03 marks each. Answers to these questions should in the range of 30 to 50 words.**
v. **Section C consists of 2 Long Answer type questions carrying 04 marks each. Answers to these questions should in the range of 50 to 80 words.**

Section A – (2 marks each) - Class 6 Science PA1 Class Test Exam Paper 2025

1. Why do we need to have calcium-rich foods?
2. Differentiate between saturated and unsaturated fats.
3. What is a balanced diet? Why is it important to have a balanced diet?
4. Draw a diagram to illustrate reflection of a parallel beam of light from a smooth surface.
   OR
   Draw a diagram to show how an image is formed in a pinhole camera. Label all the parts of the pinhole camera.
5. Write down two characteristics of a shadow.

Section B – (3 marks each) - Class 6 Science PA1 Class Test Exam Paper 2025

6. What is PEM? List the common symptoms of PEM in children.
7. Define solute, solvent, and solution with one example of each.
   OR
   Define sediment and supernatant with one example of each.
8. Can you see clearly through a transparent material? Give two examples of transparent materials. Describe an activity to determine whether a given material is transparent or not.
9. Describe, with examples, how plants are an important source of food.

Section C – (4 marks each)- Class 6 Science PA1 Class Test Exam Paper 2025

10. Describe two different methods which can be used to separate a mixture of sand and water. Also draw well-labelled diagrams for the two.
11. Explain the causes and symptoms of each of the following deficiency diseases:
    a. Rickets
    b. Beriberi
    c. Anaemia
    d. Goiter
    OR
    Why are minerals important for the body? Describe the two groups of minerals.

Class 6 Science PA1 Class Test Exam Paper 2025 Answer Key – 2025

Section A – (2 marks each)

1. **Why do we need to have calcium-rich foods?**

Calcium is essential for maintaining strong bones and teeth, which is important for overall bone health and preventing conditions like osteoporosis. It also plays a role in muscle function, nerve transmission, blood clotting, and heart health.

2. **Differentiate between saturated and unsaturated fats.**

- **Saturated fats** are typically solid at room temperature and are mostly found in animal products (like butter, meat, and dairy). They can raise levels of bad cholesterol (LDL) in the blood, increasing the risk of heart disease.
- **Unsaturated fats** are usually liquid at room temperature and are found in plant oils (like olive oil, sunflower oil) and fish. They are considered healthier as they can lower bad cholesterol (LDL) and may reduce the risk of heart disease.

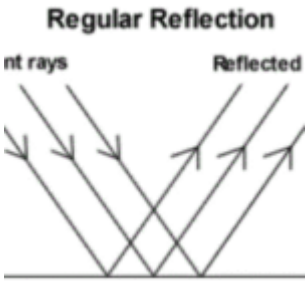
3. **What is a balanced diet? Why is it important to have a balanced diet?**

A balanced diet consists of a variety of foods in the right proportions to provide all the essential nutrients: carbohydrates, proteins, fats, vitamins, and minerals.
It is important because it helps the body maintain healthy growth, energy levels, and efficient functioning. A balanced diet also helps prevent diseases, supports the immune system, and ensures proper bodily functions.

4. **Draw a diagram to illustrate reflection of a parallel beam of light from a smooth surface.**

Unfortunately, I can't draw directly in this format, but here’s how you can visualize it:

- A **parallel beam of light** hits a **smooth surface** (like a mirror).
- The angle at which the light strikes the surface (angle of incidence) is equal to the angle at which it reflects off the surface (angle of reflection).
- The reflected light beams move in a new direction, following the law of reflection: **Angle of incidence = Angle of reflection**.

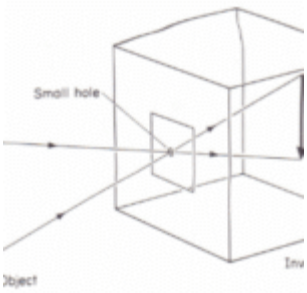


You can draw a line representing the incoming light, the surface, and the reflected light with both angles clearly marked.

5. **Draw a diagram to show how an image is formed in a pinhole camera. Label all the parts of the pinhole camera.**

Again, while I can't physically draw, here's how you can picture it:

- A **pinhole camera** consists of a **box or container** with a small hole (the **pinhole**) on one side.
- On the opposite side of the pinhole, there is a screen or photographic paper that captures the image.
- **Light rays** pass through the small pinhole and project an **inverted image** on the screen.
- The size of the image depends on the size of the pinhole and the distance between the pinhole and the screen.



Parts of the pinhole camera:

1. Box or container
2. Pinhole
3. Screen or photographic paper
4. Inverted image

6. **Write down two characteristics of a shadow.**

1. **Shape**: The shape of a shadow depends on the shape of the object blocking the light.
2. **Size**: The size of the shadow varies with the distance between the object and the light source; the closer the object is to the light, the larger the shadow.

Section B – (3 marks each) - Class 6 Science PA1 Class Test Exam Paper 2025

1. **What is PEM? List the common symptoms of PEM in children.**

Ans: **PEM (Protein-Energy Malnutrition)** is a condition that occurs when a child's diet does not provide enough protein and energy (calories) to meet their growth and development needs. It is commonly caused by inadequate food intake, poor absorption of nutrients, or chronic illness.

Common Symptoms of PEM in Children:

- **Stunted growth**: Inadequate nutrition affects the child's growth rate.
- **Weak immune system**: Increased susceptibility to infections due to poor immune function.
- **Edema**: Swelling, particularly in the legs, due to fluid retention.
- **Fatigue and lethargy**: Reduced energy levels and lack of vitality.
- **Hair thinning and loss**: Hair becomes brittle and falls out due to protein deficiency.
- **Skin problems**: Dry, flaky skin or rashes.

2. **Define solute, solvent, and solution with one example of each.**

- **Solute**: A substance that is dissolved in a solvent to form a solution.
  Example: Salt in water (salt is the solute).
- **Solvent**: A substance that dissolves the solute to form a solution.
  Example: Water (water is the solvent in the salt-water solution).
- **Solution**: A homogeneous mixture of a solute dissolved in a solvent.
  Example: Saltwater (a solution of salt dissolved in water).

3. **Define sediment and supernatant with one example of each.**

- **Sediment**: The solid particles that settle at the bottom of a liquid after the liquid has been left undisturbed for some time.
  Example: In muddy water, the mud particles that settle at the bottom after the water is left to stand are the sediment.
- **Supernatant**: The clear liquid that remains above the sediment after it has settled.
  Example: In the same muddy water, the clear water above the settled mud is the supernatant.

4. **Can you see clearly through a transparent material? Give two examples of transparent materials. Describe an activity to determine whether a given material is transparent or not.**

Yes, you can see clearly through a transparent material because it allows light to pass through it without scattering, providing a clear view of objects on the other side.

Examples of Transparent Materials:

1. Glass

2. Clear plastic (e.g., acrylic sheet)

Activity to Determine Transparency:

1. **Materials needed**: A flashlight, a piece of the material being tested, and a piece of paper or a white screen.
2. **Procedure**:
    - Shine the flashlight through the material and observe the light passing through.
    - If the material allows light to pass through clearly and you can see the light spot on the paper or screen, the material is transparent.
    - If the light is blocked or scattered so that you cannot see the light spot clearly, the material is not transparent.

5. **Describe, with examples, how plants are an important source of food.**

Plants are vital sources of food for humans and animals. They provide essential nutrients such as carbohydrates, proteins, fats, vitamins, and minerals.

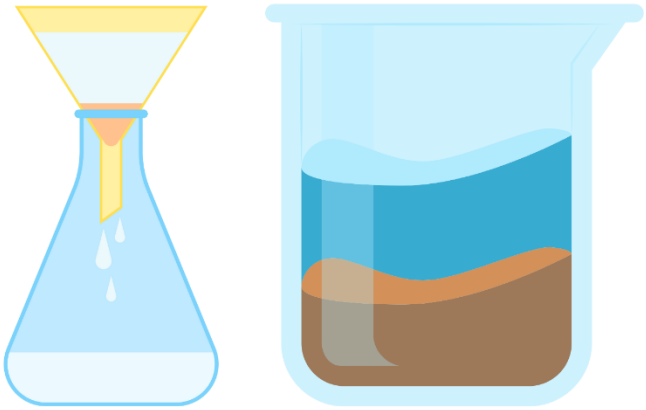
Examples of How Plants Provide Food:

1. **Fruits and Vegetables**: These are rich in vitamins, minerals, and fiber. For example, **apples** are rich in vitamin C, and **spinach** is packed with iron.
2. **Grains and Cereals**: Plants like wheat, rice, and maize provide carbohydrates, which are a major energy source. For example, **rice** is a staple food for many people around the world.
3. **Legumes and Nuts**: These are good sources of plant-based proteins and essential fats. For example, **beans** provide proteins, while **almonds** provide healthy fats and nutrients like vitamin E.

Section C – (4 marks each) - Class 6 Science PA1 Class Test Exam Paper 2025

1. Describe two methods used to separate a mixture of sand and water.

Answer:
There are two common methods to separate a mixture of sand and water:



Filtrtation Sedimentation

1. Filtration

- Filtration is a method that uses a filter (like filter paper) to separate solid particles from a liquid.
- **Process**: When the sand and water mixture is poured into a funnel containing filter paper, the sand is trapped in the paper, while the water passes through as a clear liquid.
- **Example**: Filtering muddy water to separate sand.

2. Decantation

- Decantation is used to separate solids that have settled at the bottom of a liquid.
- **Process**: The mixture is left undisturbed so that the sand settles at the bottom. Then, the water is carefully poured off into another container, leaving the sand behind.
- **Example**: Separating sand from water by pouring off the clear water after the sand has settled.

2. Explain the causes and symptoms of the following deficiency diseases:

a. Rickets

- **Cause**: Rickets is caused by a deficiency of **Vitamin D**, calcium, or phosphate, which are essential for bone health and growth.
- **Symptoms**: Children with rickets may have **weak, soft bones**, which can lead to **bone deformities** like **bowed legs** and **stunted growth**. There may also be **bone pain** and **muscle weakness**.

b. Beriberi

- **Cause**: Beriberi is caused by a deficiency of **Vitamin B1 (thiamine)**, which is important for energy metabolism and nerve function.
- **Symptoms**: The disease can cause **swelling (edema)**, **muscle weakness**, **heart problems**, and **nervous system issues** like **numbness** and **paralysis**.

c. Anaemia

- **Cause**: Anaemia is caused by a deficiency of **iron**, **Vitamin B12**, or **folate**. It leads to a reduction in the number of **red blood cells** or **hemoglobin**, which carry oxygen to the body.
- **Symptoms**: **Fatigue**, **paleness**, **shortness of breath**, **dizziness**, and **rapid heartbeat** are common signs of anaemia.

d. Goiter

- **Cause**: Goiter is caused by a deficiency of **iodine**, which is necessary for the production of thyroid hormones.
- **Symptoms**: The main symptom is **swelling in the neck** (enlarged thyroid gland), making it difficult to **swallow** or **breathe**. Other symptoms include **fatigue** and **weight gain**.

3. Why are minerals important for the body? Describe the two groups of minerals.

Answer:
Minerals are important for the body because they are essential for various bodily functions such as bone health, nerve function, muscle function, and energy production. They help in building strong bones, making enzymes and hormones, and supporting a healthy immune system.

1. Macrominerals (Major Minerals)
These minerals are needed by the body in larger amounts. They are essential for growth, development, and maintaining normal body functions.

- **Examples**:
    - **Calcium**: Vital for healthy bones and teeth.
    - **Phosphorus**: Works with calcium to build strong bones.
    - **Magnesium**: Important for muscle and nerve function and energy production.

2. Microminerals (Trace Minerals)
These minerals are needed in smaller amounts but are equally important for health. They support functions like oxygen transport, thyroid function, and immune health.

- **Examples**:
    - **Iron**: Necessary for the production of hemoglobin, which carries oxygen in the blood.
    - **Iodine**: Essential for thyroid hormone production, which controls metabolism.
    - **Zinc**: Important for immune function, cell division, and wound healing.

4. Describe how plants are an important source of food.

Answer:
Plants are a vital source of food for both humans and animals. They provide a wide range of essential nutrients, including carbohydrates, proteins, fats, vitamins, and minerals, which are necessary for growth, energy, and overall health.

Examples:

1. **Fruits and Vegetables**:
    - Fruits like **apples**, **bananas**, and **oranges** are rich in vitamins (e.g., Vitamin C) and minerals. Vegetables like **spinach** and **carrots** are rich in iron and vitamins that help in maintaining good health.
2. **Grains and Cereals**:
    - Plants like wheat, rice, and maize provide **carbohydrates** that are the body's primary source of energy. **Rice** is a staple food in many countries, providing necessary calories for survival.
3. **Legumes and Nuts**:
    - **Beans**, **lentils**, and **peanuts** are good sources of **protein**, essential for growth and repair of body tissues. **Almonds** and other nuts provide healthy fats, vitamins, and minerals.