

Elements of Science - 5

1. Reproduction in Plants

A. Tick (✓) the correct answer.

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

B. Fill in the blanks.

1. Reproduction 2. Vegetative part 3. Dispersal
4. Germination 5. Eye

C. Match the following.

1. Seed leaves ————— (a) dispersed by explosion
2. Coconut ————— (b) dispersed by wind
3. Pea seed ————— (c) dispersed by water
4. cotton seed ————— (d) cotyledons

D. Write 'T' for true statements and 'F' for false statements.

1. F 2. F 3. F 4. T 5. T

E. Answer in a sentence or two.

1. It protects the baby plant.
2. It is the development of seed into a seedling.
3. It explodes when it is dry.

F. Answer in brief.

1. It is the production of more of its ownkind by an organism. It is of two types · Sexual and Asexual.
2. On getting the right amount of air water and warmth, a seed germinates into a seedling which later grows in a plant. Water softens the seed coat. Air gives it the oxygen for breathing. It needs warmth to get active.
3. Wind, water and animals are the agents of dispersal. Wind take away the small and light seeds and drop them to grow. Seeds of plants growing near water float away in water and seeds which get stuck to the hairy fur of animals are carried away.
4. A change of seeds into seedling is called germination. A seed waits for a long time before it finds the right conditions like right amount of water, air and sunlight.
5. A seed has three main parts · seed coat, seed hole and seed leaves. The baby plant is protected by the seed coat, water enters the seed by the seed hole. Normally, a seed is divided into two halves called the seed leaves or the cotyledons. They store food for the plant.

Hots

A papaya has many seeds, but if we plant a whole papaya in the soil, only one seed will germinate because there cannot be sufficient water, air and sunlight for all the seeds to germinate.

2. Animal Habitats and Adaptations

A. Tick (✓) the correct answer.

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

C. Match the following.

- | | | |
|--------------------|-------|---------------------------|
| 1. Femur | _____ | (a) backbone |
| 2. Vertebrae | _____ | (b) tendons |
| 3. Skeleton | _____ | (c) thigh bone |
| 4. Ligaments | _____ | (d) involuntary |
| 5. Cardiac muscles | _____ | (e) framework of the body |

D. Write 'T' for true statements and 'F' for false statements.

1. F 2. F 3. T 4. F 5. T
6. F 7. F

E. Answer in a sentence or two.

- 12 pairs of ribs
- A joint is a place where two bones meet. Joints are of 4 types - Hinge, Ball and socket, Pivot and Gliding.
- It is a substance in the bones which produces white blood cells and red blood cells.

F. Answer in briefly.

- The skeletal system gives shape, strength and support to our body.
- It is the most important skeletal organ of our body, extending from the base of the skull down to the hips. It is a column of 33 drum shaped bones called vertebrae. Back bone protects the spinal cord and nerves.
- It is a place where two bones meet such as elbow and shoulder joints.
- Voluntary muscles are muscles of which we can control the movements such as biceps and triceps in our arms. Involuntary muscles are those muscles of which we cannot control the movements such as muscles of stomach and intestines.
- Cardiac muscles are special muscle work continuously for the whole life of a human making the heart pump blood to different parts of the body.

Hots

Hinge joints move in only 1 direction because the bones with these joints are normally used to grasp and hold things so if they were hinge joints then it would be impossible to hold and grasp things.

4. The Nervous System

A. Tick (✓) the correct answer.

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

B. Fill in the blanks with suitable words.

- | | | |
|-------------|------------|----------------|
| 1. Cerebrum | 2. Medulla | 3. Spinal Cord |
| 4. Sensory | 5. Medulla | 6. Neuron. |

C. Answer the following questions in brief.

- It is a system which controls all the actions of our body.
- The brain responds to the information received by sending instructions by nerves to the muscles and glands to function.
- It is an automatic action in response to a stimuli in which brain is not involved.

4. These nerves carry messages from the sense organs to the brain.
5. Brain and spinal cord are protected by skull and backbone respectively.

D. Answer the following questions in detail.

1. The brain has three parts - cerebellum, cerebrum and medulla. Cerebrum is the largest part of our brain. We hear, see and do all intelligent activities with its help. The movement of muscles is controlled by the cerebellum. It helps maintain a correct posture while sitting, standing and walking. Medulla is also known as the brain stem. It connects the brain to the spinal cord, It controls all the involuntary actions.
2. Nerves are thread like things which connect every part of our body to the Brain or Spinal Cord. They are made up of nerve cells which are also known as neurons, They are of 3 types- sensory, motor and mixed. Sensory organs carry messages to the brain from the sense organs. Motor nerves carry orders from the brain to the muscles. Mixed nerves carry out two way transmission.
3. Sensory nerves carry message from the sense organs to the brain. Then the brain sends instructions to the muscles through motor nerves.
4. Reflex action is an automatic action in response to a stimuli in which brain is not involved. Involuntary action is an automatic action going on our body carried out by involuntary muscles.
5. The central nervous system is formed by the brain and the spinal cord. It is the main centre of control in our body.
The Peripheral Nervous system is formed by nerves connecting every part of the body to the spinal cord to the brain.

Hots

The part of the brain which never sleeps is medulla. It controls our involuntary actions like breathing, beating of heart. If it sleeps a person will die.

5. Food and Health

A. Tick (✓) the correct answer.

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

B. Fill in the blanks.

1. Roughage
2. Communicable disease
3. water borne disease
4. Anaemia
5. Vitamin C

C. Match the following:

- | | | |
|--------------------|-------|---------------|
| 1. Anaemia | _____ | (a) Vitamin B |
| 2. Night blindness | _____ | (b) Iron |
| 3. Scurvy | _____ | (c) Vitamin A |
| 4. Rickets | _____ | (d) Iodine |
| 5. Goitre | _____ | (e) Vitamin D |
| 6. Beri beri | _____ | (f) Vitamin C |

D. Give at least one rich source of food for each of the following:

1. Sugar
2. Meat
3. Dalia
4. Green vegetables
5. Sunlight

E. Answer in a sentence or two.

1. It is the fibrous food present in fruits, vegetables and in the upper cover of the grains.
2. Anaemia
3. These are transmitted from one person to another.

F. Answer in brief.

1. It helps us to get rid of the undigested food easily and retain water in our body.
2. Communicable disease can be transmitted from one person to another. While, non-communicable disease can't be transmitted from one person to another.
3. Our body requires vitamins A, B, C, D.
4. Deficiency disease are caused by less or no intake of important functions. A person has rickets if his legs aren't straight but rather curved. It can be over come by intake of vitamin D.

Hots

Because cold is a communicable disease and if I had went to school yesterday, then other students would have fallen ill.

6. Air and Water

A. Tick (✓) the correct answer.

1. (c) 2. (b) 3. (c) 4. (b)

B. Fill in the blanks.

1. ultraviolet 2. temperature 3. oxygen 4. Water 5. atmospheric

C. Match the following.

- | | | |
|---------------|---|----------------------------------|
| 1. Air | — | (a) harmful rays |
| 2. Space | — | (b) harmful substances |
| 3. Acid rain | — | (c) sulphur and nitrogen dioxide |
| 4. Pollutants | — | (d) mixture of gases |
| 5. UV rays | — | (e) no air |

D. Write 'T' for true statements and 'F' for false statements.

1. F 2. T 3. T 4. T 5. F 6. T

E. Answer in a sentence or two.

1. It filters out the harmful rays like ultraviolet rays.
2. Sedimentation is the process of deposition of solid impurities present in a liquids and Decantation is a process of separating the lighter liquid in the another vessel.
3. If we drink polluted water, then we will fall ill, So we shall drink purified water.

F. Answer in brief.

1. Air contains about 78% nitrogen 21% oxygen and 1% other gases.
2. It is the pressure exerted by air upon the earth. It helps in drawing water using pumps and in drinking liquids with a straw.
3. Water is made impure by the disposal of waste materials and washing of pesticides from the fields. The impure water is harmful for plants, animals and the environment.
4. It is defined as the process of separating a liquid from a mixture. In

it contaminated water is heated in the flask, When water is evaporated, impurities are left behind into the flask. The steam then passes through a condenser where it cools down and changes into pure water.

- In the urban areas, where smoke is emitted from chimneys and vehicles containing unburnt carbon particles and Sulphur dioxide and nitrogen dioxide gases. When in the atmosphere, these gases change into acid and come down to earth in the form of acid rain.
- The electrical water purifiers filter water and have ultra-violet rays tubes in it which mainly kill the germs.

Hots

We must crush plastic mineral water bottles before throwing them into the dustbin because they are made up of thin plastic that is not suitable for . When thrown without destruction there are chances that these bottles are made fresh by purging gas and making them look fresh.

7. Safety and First-Aid

A. Tick (✓) the correct answer.

- (a)
- (c)
- (c)
- ©

B. Fill in the blanks.

- injured
- bone
- burnol
- viruses
- anti-rabies

C. Match the following.

- | | |
|------------------------|----------------------------------|
| 1. Ice cubes | (a) on the skin |
| 2. Drop and roll | (b) before going to the hospital |
| 3. Blister | (c) injuries |
| 4. First-aid treatment | (d) to put out the flames |
| 5. Accidents cause | (e) cool the burning area |

D. Write 'T' for true statements and 'F' for false statements.

- T
- F
- T
- T
- T
- T

E. Answer in a sentence or two.

- They are devices to put out fires containing CO₂ gas or foam.
- In case of a gas leak, we should immediately open the windows and doors so that the gas can spread out.
- It is the twisting and swelling up of joints due to a bad fall. For first aid, a cold ice-pack should be used on the affected area.

F. Answer in brief.

- It is the immediate help given to an injured or sick person.
- We shall first tie a bandage tightly above the wound. We can also apply a thick pad of cotton over the wound or use a tourniquet.
- First make him sit on a chair and tilt his head back. Then we will keep an ice pack on the patient's nose to reduce the bleeding. We will ask him to breathe through his mouth.
- A crack or break in bone is called fracture.
Following are first-aid steps in case of fracture :
 - Do not allow the person to move.
 - Make the patient calm and comfortable.
 - Tie a splint to give support to the broken bone.
 - The fractured arm can be supported by a sling. It gives support to the arm and prevents its movement.

Hots

Because it may happen that Komal's clothes catch fire in the kitchen and she gets burns.

C. Match the following.

- | | | |
|--------------------|---|------------------------|
| 1. Air pollution | — | (a) Plastic bags |
| 2. Water pollution | — | (b) Honking vehicles |
| 3. Soil pollution | — | (c) Harmful substances |
| 4. Noise pollution | — | (d) Smoke |
| 5. Pollutants | — | (e) Sewage |

D. Write 'T' for true statements and 'F' for false statements.

1. T 2. T 3. T 4. T 5. F

E. Answer in a sentence or two.

1. It is the addition of harmful things into the environment.
2. It causes respiratory diseases like asthma and global warming.
3. It is caused due to the increase in temperature.
4. It is caused by soil erosion and overuse of chemicals.
5. These are the things which cause pollution.

F. Answer in brief.

1. It is the addition of harmful things into the environment.
2. The main causes of water pollution are the wastes from industries and the sewage pipelines. In the villages, water is polluted by washing clothes, cattle and bathing and the dumping of solid wastes.
3. It is caused by the loud sounds, honking vehicles, noise from firecrackers, construction of roads and buildings.
4. (i) Planting of more trees
(ii) Waste and sewage treatment
(iii) Usage of cloth and jute bags
(iv) use of more solar energy
(v) Using natural fertilizers

Hots

1. When the soil is made infertile by soil pollution it becomes unfit for growing of plants so the land becomes barren.
2. When firecrackers are burst they cause air pollution and noise pollution.

10. Natural Disasters

A. Tick (✓) the correct answer.

1. (c) 2. (a) 3. ©

B. Fill in the blanks.

1. core 2. seismograph 3. active 4. overflow

C. Match the following.

- | | | |
|----------------|---|--|
| 1. Earthquake | — | (a) Device used to measure earthquake |
| 2. Epicentre | — | (b) Underwater earthquake |
| 3. Seismograph | — | (c) A sudden violent shaking of the ground |
| 4. Tsunami | — | (d) Point directly above the focus |

D. Write 'T' for true statements and 'F' for false statements.

1. F 2. T 3. F 4. T

E. Answer in a sentence or two.

1. It is the sudden violent shaking of the ground.

- It is the point directly above the focus.
- It is a volcano which has not erupted for a long period of time but may erupt in the future.
- Tides occur due to the gravitational force exerted by the Sun and the Moon on the Earth.

F. Answer in brief.

- It is caused by the shifting of layers of rocks deep under the Earth's Crust. Its after effects are destruction of buildings, roads, huge loss of life and spread of diseases.
- It is a vent from which hot magma comes out. It is of 3 types Active, dormant and extinct. Active volcanoes erupt frequently. Dormant volcanoes have not erupted for a long period of time but may erupt in the future. Extinct volcanoes are not expected to erupt in the future.
- After effects** : Destruction of farmlands and roads and spread of diseases.
Advantages : Soil after an eruption becomes very fertile and they can be used to generate geothermal energy.
- They occur due to heavy rainfall excess melting of snow in glaciers. The after effects of floods are loss of life, damage to property and spread of water borne diseases.

Hots

- Using the stairs is better for Amit, because if the elevator stops working, then he would be trapped in the building.
- Yes, In the sea floor, an earthquake causes huge tides to form and waves which can cause huge destruction.

11. Solids, Liquids and Gases

A. Tick (✓) the correct answer.

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

B. Fill in the blanks.

1. matter 2. substance 3. physical 4. molecules
5. solid, liquid and gas

C. Match the following.

- | | |
|-------------|---|
| 1. Matter | (a) has a definite shape and volume |
| 2. Molecule | (b) has no definite shape but has a definite volume |
| 3. Gas | (c) attraction between molecules is the least |
| 4. Solid | (d) anything that occupies space and has weight |
| 5. Liquid | (e) smallest particle of a substance |

D. Write 'T' for true statements and 'F' for false statements.

1. T 2. F 3. T 4. F 5. T

E. Answer in a sentence or two.

- Because it consists of 2 oxygen atoms.
- Melting is the change of a solid to its liquid form whereas freezing is the change of a liquid into its solid form.
- When a solid is heated, it expands.

F. Answer in brief.

- When a gas is cooled for a long time, the molecules slow down and gradually turn into liquid.

- When a solid is heated, the molecules move further apart, causing the size of the ball to increase which is called expansion.
- Yes, Solids expand on heating. As for an activity, we can take an iron ball and a ring wide enough so that the ball can pass through it. Now let us heat the ball for 5 mins, and then try to pass it through the ring. We will find that now the ball doesn't pass through the ring. This proves that solids expand on heating.
- (a) When a liquid is heated, the molecules acquire energy and move faster. On continuous heating, the molecules move so fast that they are no longer in contact with each other and thus, the liquid changes into gas. This process is called evaporation.
(b) When a liquid is cooled, the molecules slow down and cooling is continued, then the molecules come close together and rearrange themselves to become a solid. This process is called freezing.
- In a physical change no new substance is formed and there is merely a change of state. Such as melting of ice, freezing of water. In a chemical change a new substance is formed in such a way that the original substance cannot be obtained. Such as burning of wax candle or paper.

Hots

We know that gases move and occupy the entire space available to them. So, in the room the perfume being a gas fills the entire room.

12. Rocks and Minerals

A. Tick (✓) the correct answer.

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

B. Fill in the blanks.

1. Rocks 2. igneous rock 3. white marble 4. Diamond 5. fossil

C. Match the following.

- | | |
|--------------|-------------------------------------|
| 1. Obsidian | (a) Taj Mahal |
| 2. Sandstone | (b) Molten rock inside Earth's core |
| 3. Marble | (c) Light rock with holes |
| 4. Magma | (d) used in building Red Fort |
| 5. Pumice | (e) volcanic eruption |

D. Write 'T' for true statements and 'F' for false statements.

1. F 2. T 3. T 4. F 5. F

E. Answer in a sentence or two.

- Minerals are solid, naturally occurring substances like copper, aluminum, gold etc.
- Gemstones are used in making jewellery like gold and diamond pearls and rubies etc.
- They are minerals having metallic deposits where the metals can be extracted profitably. Such as Barite and Pyrite.

F. Answer brief.

- On the basis of their formation Rocks are divided into three groups. Igneous, Sedimentary and metamorphic.

Hots

I would suggest her to buy transparent container so that the contents are visible to us.

14. Force, Work and Energy

A. Tick (✓) the correct answer.

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

B. Fill in the blanks.

1. force 2. slow 3. mechanical 4. force

C. Match the following.

1.



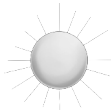
2.



3.



4.



5.



(a) Magnetic force

(b) Buoyant force

(c) Solar energy

(d) Light energy

(e) Wind energy

D. Answer in a sentence or two.

1. A push or pull on an object is called force.
2. (i) Magnetic force (ii) Mechanical force
(iii) Muscular force (iv) Elastic force
3. When applied force changes the position of an object its called work.

E. Answer in brief.

1. It is said to be done only when the applied force causes a change in the position of the object in the direction of the applied force.
2. If we push down a mug floating on water, we feel an upward thrust. This up thrust or push is called buoyant force.
3. Friction is the force which slows down a moving object. It helps us in walking, travelling etc. But it leads to wear and tear of wheels.
4. Energy that we get from light is called light energy. It's sources are Bulb, Candle, tube, sun, etc. Energy that we get from the sun is called heat energy. It is produced when fuels like wood, coal, etc. are burnt.

Hots

If one child gets up all of a sudden, then due to gravitational force, the other child will fall to the earth.

15. Measurement

A. Tick (✓) the correct answer.

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

B. Fill in the blanks.

1. unit 2. 1000 3. mass 4. 60 5. 366

C. Match the following.

- | | | |
|----------------|-------|-----------------|
| 1. Cubit | _____ | (a) Kilogram |
| 2. Length | _____ | (b) Minute |
| 3. Capacity | _____ | (c) Thermometer |
| 4. Mass | _____ | (d) Body part |
| 5. Time | _____ | (e) Kilometer |
| 6. Temperature | _____ | (f) Litre |

D. Write 'T' for true statements and 'F' for false statements.

1. F 2. F 3. T 4. T 5. T

E. Answer in a sentence or two.

1. Measuring tape and a ruler.
2. It is the amount of liquid a container can hold.
3. Time is a particular moment in a day while time duration is the duration between two events.

F. Answer in brief.

1. It is the finding out of the size or quantity of something.
2. The relationship between °C and °F is given by
 $^{\circ}\text{F} = (^{\circ}\text{C} \times \frac{9}{5}) + 32$
 $^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$
3. Handspan, cubit, foot. The drawback of using these body parts for measuring lengths is that they are different for each and every person.
4. Metre, litre, kg, second, kelvin.
5. Temperature is the hotness or the coldness of any object. Thermometer is used for measuring it. They are of two types, - Clinical and laboratory.

Hots

1. $7 \times 60 = 420$ minutes
2. (a) centimeter (b) litre (c) grams

Model Test Paper -1

A. Short answer type questions.

1. It is the production of more of its own kind by an organism.
2. It is a thick layer of fat under the animals which gives them warmth.
3. It is a substance in the bones which produces white blood cells and red blood cells.
4. These nerves carry messages from the sense organs to the brain.
5. It is the fibrous food present in fruits vegetables and in the upper cover of the grains and help us to digest food easily.

B. Long answer type questions.

1. It is defined as the process of separating a liquid from a mixture. In this, Contaminated water is heated in the flask. When the water is

evaporated, impurities are left behind in the flask. The steam then passes through a condenser where it cools down and changes into pure water.

2. It is a crack or break in the bone. A fracture causes a lot of pain. The effected area may swell up. It makes a person unable to move.
3. We need five main nutrients carbohydrates, proteins, fats, vitamins and minerals.
4. The central nervous system is formed by the brain and the spinal cord. It is the main centre of control in our body.
The peripheral nervous system is formed by nerves connecting every part of the body to the spinal cord to the brain.

A. Tick (✓) the correct answer.

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

D. Match the following.

- | | | |
|--------------------|---|---------------------------|
| 1. Femur | — | (a) backbone |
| 2. Vertebrate | — | (b) tendons |
| 3. Skeleton | — | (c) thigh bone |
| 4. Ligaments | — | (d) involuntary |
| 5. Cardiac Muscles | — | (e) framework of the body |

Model Test Paper -2

A. Short answer type questions.

1. It occurs when the earth comes between the sun and the moon.
2. It is the addition of harmful things into the environment.
3. It is a vent in the surface of the earth from which hot magma comes out.
4. Yes, on heating of a solid, the molecules move further apart, causing the size of the solid to increase.
5. These rocks are the results of the transformation of an existing rock, through a process called metamorphism. Like, Marble, Slate.

B. Long answer type questions.

1. Transparent materials allow light to pass through them completely like clear glass and clear water.
Translucent materials allow light to pass through them only partially like butter paper and frosted glass.
Opaque materials do not allow light to pass through them like wood, bag.
2. **Advantages :**
 - (i) We can run, walk etc.
 - (ii) We can drive vehicles on road.
 - (iii) We can play sports.

Disadvantages :

- (i) Our tyres are worn out easily.
 - (ii) We need greater force to pull a load.
3. It is the measuring of the size or quantity of something.
Length measures the distance between two points. **Capacity** is the amount of liquid a container can hold. **Mass** is the amount of matter

present in a particular body or object. **Time** is a particular moment in a day. **Temperature** is the degree of hotness or coldness of any object.

4. Heat energy is the energy that we get from the Sun. It is produced on burning of fuels.

Light energy is the energy that we get from the source of light like sun, bulb.

C. Fill in the blanks.

1. slow
2. black
3. fossil
4. marble
5. small

D. Define the following.

1. When two or more atoms combine together, they form a molecule.
2. Global warming refers to the increase in temperature all around the earth.
3. An eclipse is a natural phenomenon in which the three heavenly objects, the sun, the earth and the moon are in a straight line.

