

**Goa Board  
Class VII Science  
Sample Paper – 4 Solution  
Term II**

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**SECTION A**

1. **(a)**  
The scars found on potatoes are called 'eyes'.
2. **(a)**  
Clarified water emerges from the sedimentation tank.
3. **(a)**  
The heart is located in the chest cavity.
4. **(b)**  
Crow is an omnivore which consumes both plants and animals.
5. **(b)**  
Arteries have thick, elastic walls.
6. **(d)**  
Increasing snowfall does not deplete the water table at a place.
7. **(c)**  
The presence of salts in water increases the rate of rusting.
8. **(a)**  
Sulphur dioxide is a non-metal which gives acidic solution on reaction with water.
9. **(c)**  
Breaking of bone is a physical change which can be reversed by medical treatment.
10. **(b)**  
In a physical change, the chemical properties of substances do not change.

**11.(c)**

In Process 1, the size and shape of the potato change. Hence, it is a physical change as no new substance is formed. In Process 2, frying changes the taste, colour and texture of the potato. Therefore, it is a chemical change.

**12.(b)**

In addition to new products, a chemical change is accompanied by emission or absorption of heat and light, sound production, change in odour and colour, and liberation of gas.

**13.(d)**

A physical change involves a change in physical properties of a substance such as state, shape, size and colour. No new substance is formed. Also, most of the physical changes are reversible.

**14.(d)**

The symbol represents that the switch is in the OFF condition.

**15.(a)**

A fuse should have a low melting point and high resistance.

**16.(d)**

A gas oven does not use electromagnets.

**17.(c)**

The speed of light in vacuum is  $3 \times 10^8$  m/s.

**18.(b)**

Plane mirrors form virtual images which cannot be projected on a screen.

**19.(d)**

The image formed by a convex mirror is always virtual and erect irrespective of the position of the object.

**20.(b)**

Plano-Concave  
Lens

**SECTION B**

**21.**No. The trees and animals would vary in different forests.

This is because of the different climatic conditions prevailing in different forests. Hence, the types of trees and other plants and the types of animals differ from forest to forest.

**22.**

- (i) People waste water while brushing or shaving.
- (ii) Water flowing from taps while bathing for a long time.
- (iii) Leaking taps.
- (iv) Wasting water while washing utensils and clothes.

**23.**We should plant eucalyptus trees all along sewage ponds. These trees absorb all surplus wastewater rapidly and release pure water vapour in the atmosphere.

**24.**Urine is excreted through the urinary opening at the end of a muscular tube called urethra.

**25.**

- (a) Rotting of apple is a chemical change.
- (b) Inflation of tyre is a physical change and can be reversed.

**26.**Both air and moisture are required for the process of rusting. The amount of moisture present in the air of a coastal area is more than that in the air of deserts. In a desert area, the amount of moisture is very less. Therefore, the rusting of iron objects is faster in coastal areas than in deserts.

**27.**

- (i) Physical change
- (ii) Chemical change
- (iii) Chemical change
- (iv) Physical change

**28.**If the filament of the bulb is broken, then the circuit would be incomplete and the bulb will not glow.

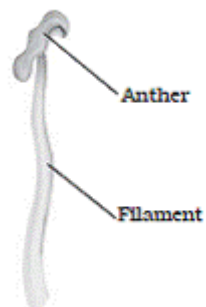
**29.**The image produced by a plane mirror is always erect and is of the same size as that of the object.

**30.**When electric current passes through a wire, it behaves like a magnet. This is called magnetic effect of electric current.

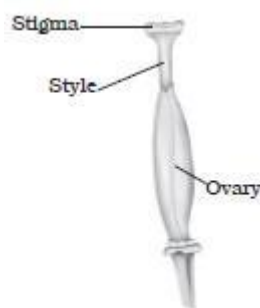
**SECTION C**

**31.**

(a)



(b)



**32.**

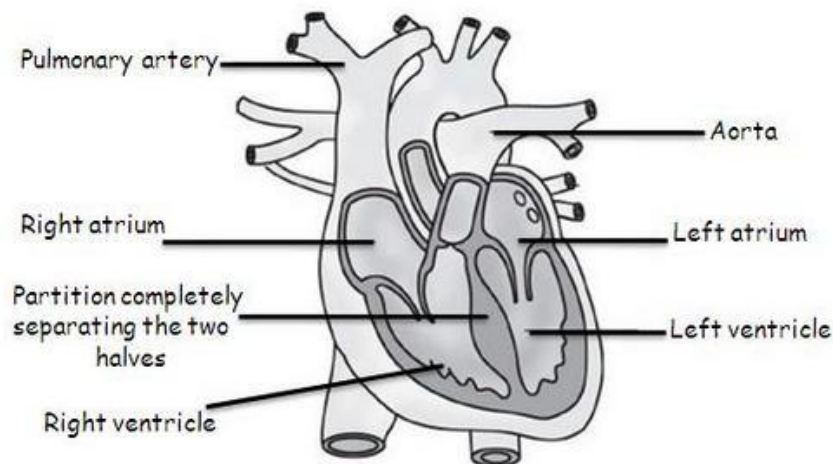
(a)

- (i) Plants produced by vegetative propagation take less time to grow.
- (ii) These plants bear flowers and fruits earlier than those produced from seeds.
- (iii) The new plants are exact copies of the parent plant.

(b) Multiple fission is the splitting of a cell into more than two cells of the same type, whereas binary fission involves the splitting of a cell into two cells of the same type.

33.

(a)



(label any 6 of these)

(b) The heart beats continuously to act as a pump for the transport of blood throughout the body.

34.

(a) Transpiration is the evaporation of water from the aerial parts of plants, especially from leaves in the atmosphere.

Importance:

- (i) It generates a force due to which water absorbed by roots is pulled upwards to the aerial parts of the plant.
- (ii) Transpiration also helps in cooling the plant.

(b) The figure shows the experimental setup for demonstrating the transport of water through cells.

35.

- (i) M is iron.
- (ii) N is copper sulphate solution.
- (iii) O is iron sulphate solution.
- (iv) P is copper.

Nails are usually made of a metal like iron; hence, M is iron. Iron on reacting with blue-coloured copper sulphate solution forms iron sulphate solution which is green. Copper after being displaced from copper sulphate gets deposited on the iron object.

36.

- (i) We know that ships are made of iron and steel, and a part of them always remains under water. The part of the ship above the water remains continuously in contact with water droplets. Moreover, seawater contains many salts. The presence of salt in seawater speeds the process of rust formation. Therefore, ships get damaged due to rusting despite being painted. Thus, a fraction of the ship's iron has to be replaced every year.
- (ii) Iron objects such as railings, window grills, iron bridges, railway coaches, buses and bodies of cars are painted in order to protect them from rusting.

37.

- (a) The rusting of iron is faster in coastal areas because the air at those places contains more water vapour, i.e. the air has high moisture content.
- (b) **Aim:** Experiment to show that rusting of iron requires both air and water.

**Procedure:**

- i. Take three test tubes and place some iron nails in each of them.
- ii. Name the three test tubes A, B and C.
- iii. Pour water in test tube A in such a manner that half part of the nails sink in water and then close the test tube with a rubber cork.
- iv. Add boiled distilled water in test tube B so that the nails sink completely, and add about 1 ml of oil. Close this test tube also with a rubber cork.
- v. In test tube C, add little powder of anhydrous calcium chloride and close it with a rubber cork.
- vi. By doing this, the nails in test tube A are in contact with both air and water.
- vii. In test tube B, the nails are in contact with water only; they do not get air.
- viii. In test tube C, anhydrous calcium chloride is present, which is a moisture-absorbing substance (hygroscopic), and so only dry air is present in test tube C.
- ix. Observe the nails in all the three test tubes after a few days.

**Observation and conclusion:**

- i. On observation, we find that the nails kept in test tube A are corroded. A reddish brown rust is seen on the surface of the iron nails kept in the presence of both air and water.
- ii. The nails kept in test tube B do not get corroded.  
Boiled distilled water does not contain any dissolved air or oxygen. A layer of oil is put in the boiled distilled water in the test tube to prevent outside air from mixing with it. This shows that rusting of iron does not take place in water alone.
- iii. In test tube C, there is no rust on the surface of the iron nails. This shows that the rusting of iron does not take place in air alone.

**38.**

- (a) The given figure is an electromagnet. We should not switch on the current for more than a few seconds through an electromagnet because the electromagnet weakens the cell quickly if left connected.
- (b) The short-circuiting may occur due to the touching of a live wire and a neutral wire directly. Overloading may be due to the flow of excessive current when many devices are connected to a single socket.

**39.**

- (a) A concave mirror produces a magnified and diminished image of an object, whereas a convex mirror always produces a diminished image of an object.
- (b) The concave mirrors are used as shaving mirrors because when the face is held within the focus of a concave mirror then an enlarged image of the face is seen in the concave mirror.

**40.**

- (a) A diagram which tells us how the various components in a circuit have been connected by using the electrical symbols of the components is called a circuit diagram. We usually represent an electric circuit by its circuit diagram because it is much easier to draw a circuit diagram by using symbols.
- (b) The magnets whose magnetism can be turned on or off when desired are called electromagnets.

#### SECTION D

**41.**

- (a) Flowers are very colourful and fragrant so as to attract insects. Insects are very important in bringing about pollination. Insects visit flowers and carry away pollen on their bodies. When they visit another flower of the same kind, some of the pollen land on the stigma of that flower and bring about pollination.
- (b)
  - (i) Flowers which contain only the pistil or only stamens are called unisexual flowers.
  - (ii) Flowers which contain both stamens and a pistil are called bisexual flowers.

**42.**

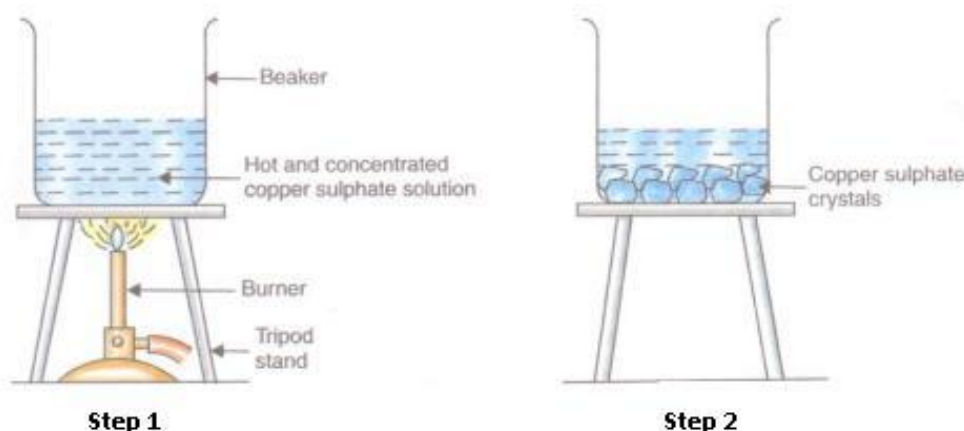
- (a) Each heartbeat generates one pulse in the arteries.  
The pulse rate indicates the rate of heartbeat.
- (b) The deoxygenated blood from different parts of the body enters the right auricle and is sent to the right ventricle. From here, the blood is pumped through the pulmonary artery to the lungs for reoxygenation. In the lungs, the deoxygenated blood gives up carbon dioxide and absorbs oxygen from the inhaled air.

43.

- The process of cooling a hot, concentrated solution of a substance to obtain crystals is called crystallisation.
- An impure solid substance contains two types of impurities—insoluble and soluble. The insoluble impurities are separated by filtering the solution, and the soluble impurities get removed during crystallisation.
- Impure copper sulphate can be purified to obtain large crystals of pure copper sulphate by the process of crystallisation.

**Activity:**

- Take about 100 ml of water in a beaker and add a few drops of dilute sulphuric acid to it. Heat the water over a burner till it boils.
- Add copper sulphate powder slowly to the hot water with constant stirring. Continue to add copper sulphate till no more copper sulphate can be dissolved. This forms a saturated solution of copper sulphate.
- Filter this hot saturated solution to remove insoluble impurities. Allow the hot and concentrated solution of copper sulphate to cool slowly.
- Keep the solution aside for some time and let it cool. After some time, large crystals of copper sulphate will start appearing at the bottom of the beaker.
- Separate these copper sulphate crystals from the solution by filtration and dry them. The soluble impurities do not crystallise and are hence left behind in the solution.



44.

- Dispersion of light is the splitting of light into its component colours on passing through a dispersive medium, e.g. prism.
- Light travels in straight lines.
- Light has a dual nature as it exhibits the properties of both waves and particles depending on the situation.