

**Goa Board  
Class VII Science  
Sample Paper – 3 Solution  
Term II**

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**SECTION A**

1. **(a)**  
The drumstick plant i.e. Moringa produces winged seeds which can be easily carried by wind.
2. **(a)**  
During sedimentation, chemicals such as alum are added to water. This allows the particles floating in the water to stick together and form a lump and thereby, settle to the bottom of the tank.
3. **(d)**  
Urinary bladder stores the urine before it is eliminated out of the body.
4. **(b)**  
Platelet forms the blood clot.
5. **(a)**  
Carbon dioxide increases the earth's temperature and leads to global warming.
6. **(b)**  
When rain falls, some of the water seeps through the soil. This process is called infiltration.
7. **(c)**  
Physical changes are temporary reversible changes in which no new substance is formed. Very little energy is absorbed or given out.
8. **(c)**  
Coal burns to produce carbon dioxide, water, ashes and energy. A change in which new substances are formed is called a chemical change.
9. **(d)**  
Physical changes are generally reversible changes in the physical properties of substances. No new substances are formed during these changes.
10. **(a)**  
The appearance of rust is like a reddish brown flaky substance.

**11.(a)**

Heating changes the chemical properties of corn and thus, it is a chemical change.

**12.(b)**

Rusting of iron is an example of chemical change.

**13.(b)**

During a physical change, no new substance is formed. The process of boiling does not involve formation of any new substance.

**14.(a)**

The symbol shows an electric cell.

**15.(b)**

An electric bulb works on the principle of heating effect of electric current.

**16.(b)**

When the switch is moved to ON position, the current flows through the circuit and hence, a magnetic field is produced near it due to which the needle shows deflection and retains this deflection as long as current passes through the coil. Once the current is switched off, it comes back to its original position.

**17.(c)**

Hans Christian Oersted was the first person to notice the deflection of compass needle every time the current was passed through the wire kept near it.

**18.(a)**

The net magnification of the combination is:

$$1 + 2 + 3 = 6$$

**19.(c)**

A straight line passing through the geometric centre of the spherical mirror and the focus is called the principal axis of the mirror.

**20.(c)**

They have a wider range of view than the plane mirror.

**SECTION B**

**21.** The top level of the underground water is called the water table.

Factors affecting the water table:

- Average rainfall in that area.
- Pumping out of groundwater.

**22.** A network of big and small pipes passing through the ground called sewers for bringing clean water and taking away waste water forms the sewerage.

It carries sewage from the point of being produced to the point of disposal i.e. the treatment plant.

**23.**

- (a) Canopy.
- (b) Decomposers.
- (c) Humus.
- (d) Food chain.

**24.** Plants benefit by seed dispersal in the following ways:

- It prevents competition between the plant and its own seedlings for sunlight, water and minerals.
- It also enables the plants to invade new habitats for wider distribution.

**25.** Formation of clouds is a physical change as it is a phase transformation of water from liquid to gas during water cycle and then, gas to liquid. Hence, the physical property of water undergoes change in the formation of clouds.

**26.** Digestion is a process where food nutrients such as carbohydrates, proteins, fats and other materials are broken down into simpler substances with the release of energy. New substances are formed and thus, digestion is a chemical change.

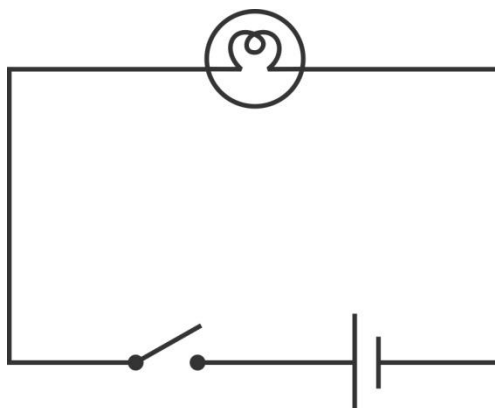
**27.** Crystallisation is the process of obtaining large crystals of pure substances from their solution.

Crystallisation is a technique used to purify solid compounds.

**28.** An object which does not allow light to pass through it is called an opaque object.

Example: book, wooden table etc.

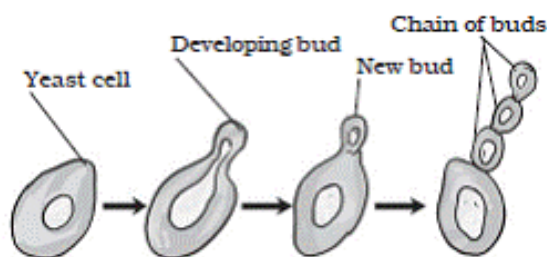
29. The circuit diagram is shown below:



30. When light from an object enters our eyes, we see the objects. The light may have been emitted by an object, or may have been reflected by it.

### SECTION C

31. Yeast is a single celled organism which when provided with nutrients and the right temperature, gives out a small bulb-like projection called bud. The bud gradually grows and gets detached from the parent cell and forms a new yeast cell. The new yeast cell grows, matures and produces more yeast cells. This process continues to form a large number of yeast cells in a short time.



32.

Artery	Vein	Capillary
i. Thick-walled.	i. Thin-walled.	i. Thin-walled.
ii. Carry oxygen-rich blood from the heart to other parts of the body.	ii. Carry carbon dioxide-rich blood from different organs to the heart.	ii. Capillaries are involved in the exchange of food material, respiratory gases, and body wastes.

33.

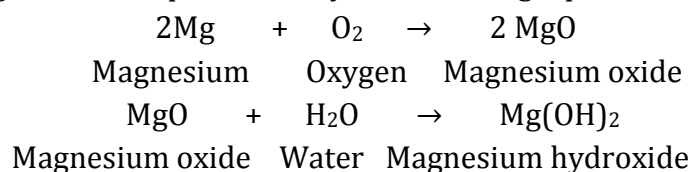
- (a) Flowers are generally very colourful and fragrant so as to attract insects. Insects are very important in bringing about pollination. Insects visit flowers and carry away pollens on their bodies. When they visit another flower of the same kind, some of the pollens lands on the stigma of that flower and brings about pollination.
- (b) A zygote is formed by the fusion of male and female gamete. It develops into an embryo.

34.

- (a) On a hot summer day, we sweat a lot. Sweat contains water and salts. The water of sweat evaporates, leaving behind the salts which appear as white patches on our clothes.
- (b) Birds and lizards excrete a semi-solid, white coloured compound, the uric acid.

35.

- (a) Both these changes are chemical changes.
- (b) These changes can be represented by the following equation:



- (c) Test magnesium oxide solution with blue litmus paper and red litmus paper respectively. Take a strip of blue litmus paper and put a drop of magnesium oxide solution on it. The blue colour of the litmus paper will not change to red. Hence, magnesium oxide solution is not acidic in nature.
- Now, take a strip of red litmus paper and put a drop of magnesium oxide solution on it. The red colour of the litmus paper will change to blue showing that magnesium oxide solution is basic in nature.

36.

- (a) The rusting of iron is faster in coastal areas because the moisture content in the air near that area is high. Hence, more water vapour in the air, higher will be the rate of rusting.
- (b) **Aim:** Experiment to show that rusting of iron requires both air and water.

**Procedure:**

- Take three test tubes and place some iron nails in each of them.
- Name the three test tubes as A, B and C.
- Pour water in test tube A in such a manner that half part of nails sink in water and then close the test tube with rubber cork.
- Add boiled distilled water in the test tube B so that the nails sink completely and add about 1 ml. oil. Close this test tube also with the rubber cork.

- In test tube C, add little powder of anhydrous calcium chloride and close it with rubber cork.
- By doing this, the nails in test tube A are in contact with both air and water.
- In test tube B the nails are in contact with water only, they do not get air.
- In test tube C anhydrous calcium chloride is present which is moisture absorbing substance (hygroscopic), and so only dry air is present in the test tube C.
- Observe the nails in all the three test tubes after few days.

**Observation and Conclusion:**

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

37.

Physical changes	Chemical changes
i. In a physical change, only physical properties such as physical state, colour, volume etc. of the reacting substance undergo change. Chemical properties remain unchanged.	i. In a chemical change, the chemical composition and properties of the reacting substances undergo change.
ii. No new substance is formed.	ii. One or more new substances are formed.
iii. These are temporary changes that can be easily reversed.	iii. These are permanent changes and cannot be reversed back.
iv. Very little energy is absorbed or given out.	iv. A lot of energy is absorbed or given out.
v. The original form of the substance can be obtained easily by simple physical methods.	v. The original substances cannot be obtained by simple physical methods.
vi. Example: Melting of ice and freezing of water, Boiling of water and condensation of steam, Breaking of a glass tumbler	vi. Example: Burning of Magnesium Ribbon, Reaction between Copper sulphate and Iron, Reaction between Baking soda and Vinegar

**38.**

- Take chess board.
- Fix a plane mirror vertically at one of its edge.
- Place any object like pencil sharpener at the boundary of third square counting from the mirror.
- Note the position of the image. Now shift the object to the boundary of the fourth square. Again note the position of the image.
- In both the cases we will find that the image is at the same distance behind the mirror as the object is in front of it.

**39.**

- Take a long piece of insulated wire and an iron nail.
- Wind the wire tightly around the nail.
- Connect the free ends of the wire to the terminals of a cell through a switch.
- Place some pins on or near the end of the nail and switch on the current. The pins cling to the tip of the nail.
- The coil behaves like a magnet till the current flows through it.

**40.**

(a)

- i. Concave mirror
- ii. Convex mirror

(b) White light consists of seven colours. These colours are: red, orange, yellow, green, blue, indigo and violet.

**SECTION D****41.**

(a)

- A - Germinating pollen grain
- B - Pollen tube
- C - Zygote formation
- D - Ovum

(b) A pistil consists of stigma, style and ovary.

(c) After pollination, the pollen grains germinate on the stigma. A thin pollen tube grows down from the pollen grain which penetrates the stigma, passes through the style and then enters the ovule. It carries two male gametes which fuses with the female gamete.

**42.**

(a)

- i. Stethoscope - It amplifies the sound of the heart, hence doctors can feel the heartbeats of the patient and get clues about the heart condition.
- ii. Atrium - It receives blood from various parts of the body.
- iii. Ventricle - It supplies blood to different parts of the body.

(b) The region marked 'E' is the partition between the chambers, called septum. It helps to avoid mixing up of blood rich in oxygen with the blood rich in carbon dioxide.

**43.**

(a) The process in which carbon dioxide reacts with water in presence of chlorophyll and sunlight to produce carbohydrates (glucose) and oxygen is known as photosynthesis.

New products, glucose and oxygen are obtained during photosynthesis, thus it is a chemical change.

(b) The ozone layer protects us from the harmful UV radiations coming from the sun. Ozone absorbs these radiations and breaks them down to form oxygen.

Yes, the breaking down of ozone into oxygen is a chemical change since ozone and oxygen have different chemical properties. New products are formed in the reaction.

(c) The melting of wax is a physical change but burning of wax is a chemical change. So, the same substance wax can undergo both physical and chemical change. On melting only change in the state of wax occurs but on burning wax, it produces carbon dioxide gas, water vapour, soot, heat and light. Hence, it is a chemical change.



**44.**

- (a) When an electric current is passed through a high resistance wire (like nichrome wire), the resistance wire becomes hot and produces heat. This is called the heating effect of current.
- (b) This is because of the fact that the fine tungsten filament has a very high resistance whereas copper connecting wires have very low resistance.
- (c) A key or a switch can be placed anywhere in an electric circuit.