

**CBSE Board**  
**Class VII Science**  
**Sample Paper – 2 Solution**  
**Term II**

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**SECTION A**

1. **(d)**  
Sphygmomanometer is used to measure the blood pressure.
2. **(b)**  
Seed formation takes place during sexual reproduction in plants. Cutting, grafting and tissue culture are methods of propagating plants asexually.
3. **(b)**  
Deforestation is the process of cutting more and more trees from the forests to accommodate growing population and to provide space for industries.
4. **(a)**  
Oxygen is a renewable resource because it is continuously supplied by plants during photosynthesis.
5. **(b)**  
In the method of galvanization, surface of iron is coated with a layer of more active metal like zinc.  
Zinc metal prevents the surface of iron from coming in the contact with air and moisture and thus, protects it from rusting.
6. **(a)**  
In a chemical change, new products are formed. The new substances formed have properties entirely different from the original substances.  
$$\text{Ca(OH)}_2 + 2 \text{HCl} \rightarrow \text{CaCl}_2 + 2 \text{H}_2\text{O}$$
7. **(a)**  
Burning of a magnesium ribbon is a chemical change. When magnesium ribbon is held over the flame of a burner, it burns with a dazzling white light to give a new substance called magnesium oxide.  
$$\begin{array}{ccccccc} 2\text{Mg} & + & \text{O}_2 & \rightarrow & 2\text{MgO} & & \\ \text{Magnesium} & & \text{Oxygen} & & \text{Magnesium oxide} & & \end{array}$$

**8. (d)**

Boiling of water, melting of ice and lighting of bulb is a physical change. No chemical reaction takes place and no new products are formed. However, rusting of iron is a chemical change. Iron article chemically reacts with air and moisture to form a flaky reddish brown layer of hydrated iron (III) oxide, known as rust.

**9. (d)**

Sodium hydroxide base is used in the soap and detergent industry.

**10. (d)**

The filament of an electric bulb is made of a thin wire of tungsten.

**11. (d)**

Compact fluorescent lamps (CFLs) reduce wastage of electricity and can be fixed in ordinary bulb holders.

**12. (d)**

A current carrying coil of an insulated wire wrapped around a piece of iron is called an electromagnet.

**13. (b)**

A non-luminous object does not produce its own light, but reflects light from other sources.

**14. (b)**

An image formed by a plane mirror is erect and of the same size as the object.

**15. (a)**

Absorber of radiant energy

### SECTION B

**16.** Septic tanks are low cost onsite sewage disposal systems suitable for places where there is no sewerage system. It can be used for hospitals, isolated buildings or a cluster of 4 to 5 houses.

**17.**

(a) Mango, apple and orange. (Any two)

(b) Castor and balsam

**18. Tooth decay can be prevented with the help of the following measures:**

1. After every meal, one should rinse the mouth thoroughly with water.
2. One should brush the teeth twice a day.
3. Sugary food must be eaten in minimal quantities.
4. Dental floss must be used to keep the space between the teeth clean.

**19.**

- i. Melting of ice: During this change, the water changes from its solid state to liquid state and it can be solidified again. Hence, this is a reversible change.
- ii. Lightening of an electric bulb: During this change, electricity is passed through the filament which becomes white hot and glows, but when the switch is off, the filament returns to its original shape and condition; hence, it is reversible.

**20.** Iron is coated with chromium to prevent rusting. It is called chrome-plating. Chromium metal is resistant to the action of air and moisture. So, when a layer of chromium is deposited on an iron object, the iron object is protected from rusting.

**21.** Light has a dual nature as it exhibits the properties of both, waves and particles depending on the situation.

**22.** A spherical mirror is that mirror whose reflecting surface is a part of a hollow sphere of glass. In a concave mirror, the reflecting surface is the bent-in surface.

**SECTION C****23.**

(a)

- i. This is because the pulmonary artery carries blood away from the heart and not towards it like a vein does.
- ii. Since the blood flows through arteries rapidly at a high pressure, the arteries have thick elastic walls.
- iii. The red blood cells contain a red pigment called haemoglobin. The presence of haemoglobin makes blood appear red.

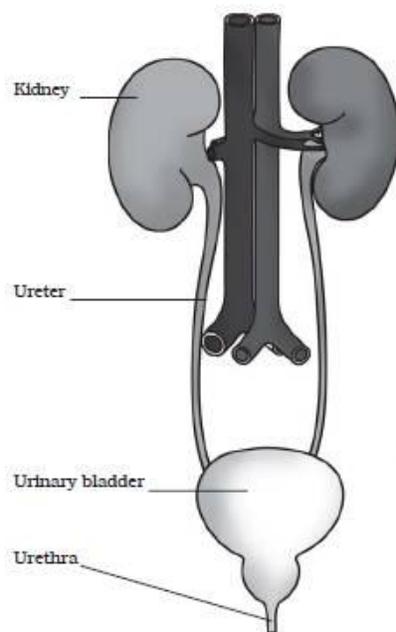
(b) Platelets form a network of cells on the cut or wound and thus, form a blood clot.

**24.**

(a) The process of taking out silk fibres from the cocoon is called reeling. Cocoons are collected first. These cocoons are then treated in hot water. Hot water makes the silk fibres of the cocoons separate. The threads are then unwound to obtain the long silk fibre.

- (b) The varieties of silk are tassar silk, mulberry silk, muga silk, kosa silk and eri silk. Mulberry silk is most commonly used. Mulberry silk is soft, lustrous and elastic and can be dyed with attractive colours.

25.



(Label any two parts)

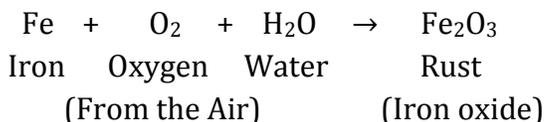
26.

- (a) An indicator is a dye that changes color when it is put into an acid or a base.
- (b) Put one drop of each liquid on turmeric paper, turn by turn.
- (i) The liquid which turns the yellow turmeric paper red will be sodium hydroxide (base). The red turmeric paper formed here can now be used to test sulphuric acid.
- (ii) Put one drop each of the remaining two liquids on red turmeric paper. The liquid which makes the red turmeric paper yellow again will be sulphuric acid (This is because sulphuric acid cancels the effect of sodium hydroxide base on turmeric paper).
- (iii) The liquid which has no effect on the red turned turmeric paper will be salt solution (because it is neutral).

27.

(a) When an iron object is exposed to air and moisture, a flaky reddish brown layer of hydrated iron (III) oxide is formed on its surface. This substance is called as rust and the process of its formation is called rusting.

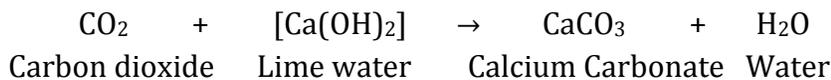
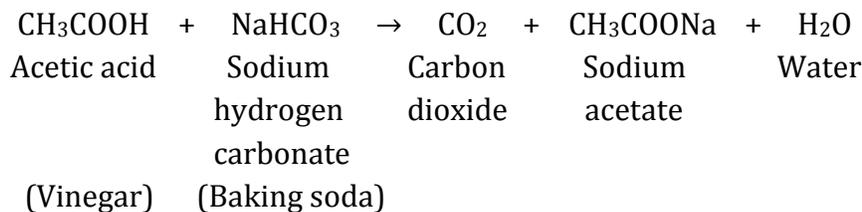
This is the only change that effects iron articles and slowly destroys them. Since iron is used in making bridges, ships, cars, truck and many other objects. Rusting weakens the structures of iron objects and cuts short their life. Following is the chemical equation to show the process of rusting of iron:



(b) Rusting of iron is considered a chemical change because a new substance called iron oxide is formed in this process.

28.

- i. Lime water is calcium hydroxide solution.
- ii. When the gas evolved is passed through lime water, it turns milky.
- iii. The turning of lime water milky shows the presence of carbon dioxide because when Carbon dioxide (CO<sub>2</sub>) is passed through lime water, white solid substance called calcium carbonate is formed which makes lime water milky.
- iv.



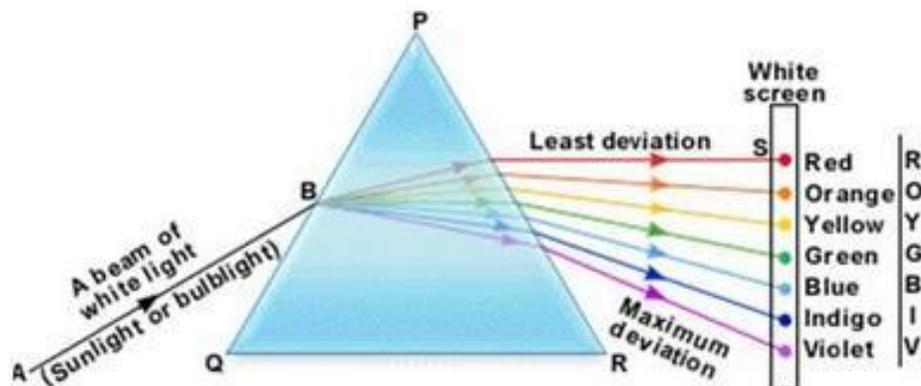
29. Cool air is denser so it moves down whereas warm air is lighter so rises up hence convection currents are formed that helps in circulating the cold air and keeps the room cool.

If the air cooler is not kept higher up, then the cool air will remain at the surface layer and warm air will remain at the top, hence no circulation of air will take place and room will remain warm.

30.

- (a) The short circuiting may occur due to the touching of live wire and neutral wire directly. Overloading may be due to the flow of excessive current when many devices are connected to a single socket.
- (b) Advantages of electromagnets over permanent magnets are:
- The magnetism of an electromagnet can be switched on or switched off as desired. This is not possible with a permanent magnet.
  - An electromagnet can be made very strong by increasing the number of turns in the coil, and by increasing the current passing through the coil. On the other hand, a permanent magnet cannot be made so strong.

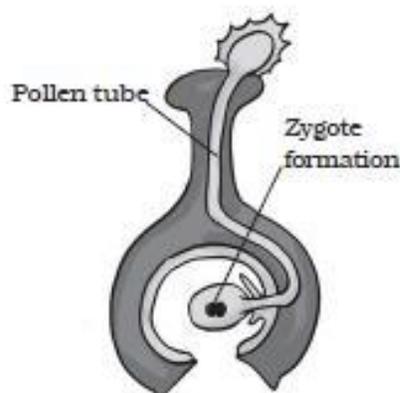
31.



### SECTION D

32.

- (a) Some seeds are dispersed by animals, especially spiny seeds with hooks. They get attached to the bodies of animals and are carried to distant places. Examples are Xanthium and Urena.
- (b)



Fertilisation (Zygote formation) in plants

**33.**

(a) Characteristics of chemical changes:

- i. These involve change in physical properties as well as the chemical composition of the substances.
- ii. These changes may be accompanied by the evolution of heat and light. Sound also may be produced in some cases.
- iii. These changes are permanent and cannot be reversed i.e. irreversible.
- iv. These changes may also involve evolution of a gas or formation of a precipitate along with the change in colour, smell and physical state.

(b) Chemical changes are very important in our lives. All new substances are formed as a result of chemical changes.

For example,

- If a metal is to be extracted from an ore, such as iron from iron ore, we need to carry out a series of chemical changes.
- A medicine is the end product of a chain of chemical reactions. Useful new materials, such as plastics and detergents, are produced by chemical reactions.
- Energy is obtained by burning fuels like coal, petrol, wood and kerosene etc.
- Burning of fuels is a chemical change accompanied by evolution of heat and new products

**34.**

(a)

- i. Bulb
- ii. Switch in 'ON' position

(b) There is a maximum limit for the current to flow through the circuit. If accidentally, the current exceeds the safe limit, the wire may become overheated and may cause fire. In this case, the fuse wire blows off and breaks the circuit thus prevents the damages to electrical circuit.