

Maharashtra State Board

Class VII Science

Board Paper – 1 Solution

I.

1. (a)

Hydrogen peroxide has the molecular formula H_2O_2 . This means that there are two hydrogen atoms and two oxygen atoms in one molecule of hydrogen peroxide.

2. (c)

The resources which cannot be recovered once exhausted are called non-renewable resources, e.g. minerals. The resources which can be easily recovered are called renewable resources, e.g. plants, sunlight and wind.

3. (d)

The pinhole camera works on the principle that light travels in a straight line. The image formed by a pinhole camera is inverted and smaller when compared to the original object. An eclipse can be viewed using a pinhole camera.

4. (b)

A solute is a substance which dissolves. A solvent is a substance in which the solute is dissolved. A solution is formed when the solute and solvent are completely mixed with each other.

5. (c)

The stomach belongs to the organ level of organisation in living things. It forms the digestive system along with the associated digestive organs.

6. (b)

Bryophyllum propagates vegetatively by the formation of leaf buds on the margins of the leaf. When the buds come in contact with moist soil, each bud can grow into a new plant.

7. (c)

The cellulose present in fibrous foods cannot be digested by the human body. It helps to expel stools from the body.

8. (d)

Mica is a good conductor of heat but a bad conductor of electricity. Therefore, it is used in electrical appliances (such as an electric iron) to prevent the risk of getting an electric shock.

9. (a)

Salt solution in the soil enters the roots of plants through root hair by the process of osmosis. The fluid in the cells of the root hair is concentrated. The salt and water in the soil pass through the semipermeable cell membrane into the cell by osmosis.

10. (c)

Grains are dried in the Sun to preserve them. On sun-drying, the water content reduces, and hence, they last longer.

11. (c)

The thyroid gland in the neck secretes thyroxine hormone.

12. (a)

In the experiment to prove that carbon dioxide is necessary for photosynthesis, potassium hydroxide pellets are kept inside the jar so that they absorb the carbon dioxide present in the air inside the jar.

13. (b)

Thales, a Greek scientist, discovered the electrostatic effect about 2500 years ago. He discovered that an amber rod rubbed by a woollen fabric was able to attract tiny feathers.

14. (b)

The speed of sound is about 340 m/s. Light travels at the speed of about 3×10^8 m/s. Thus, we can say that the velocity of light is 10^6 times greater than the velocity of sound.

15. (d)

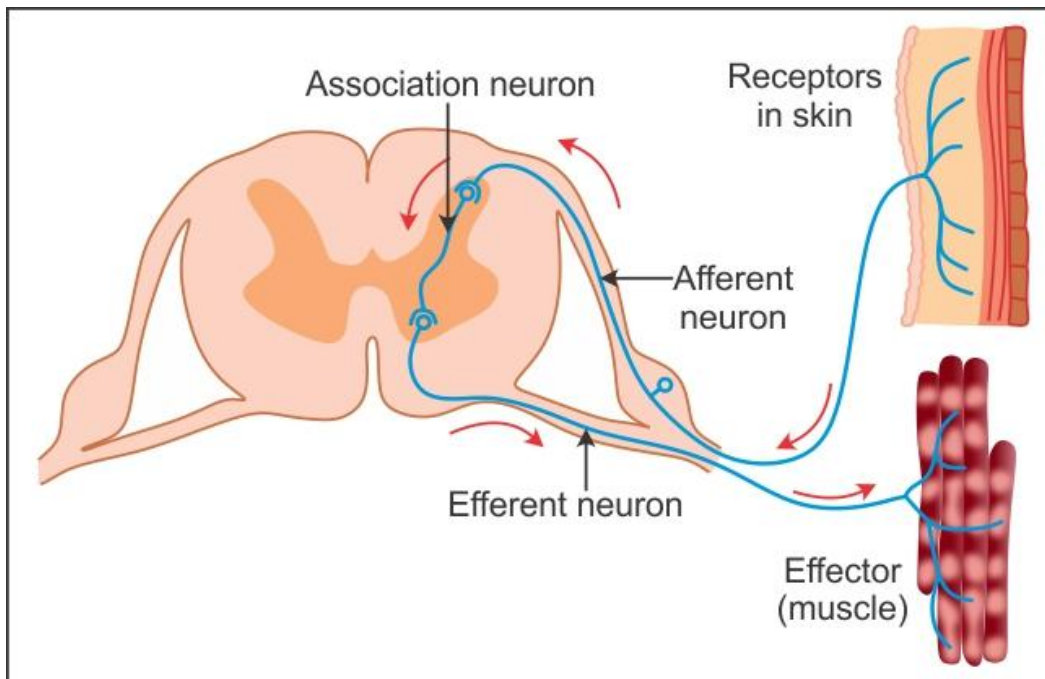
We can save our valuable natural resources if we reduce the use of fuels, use alternative sources of energy and use public mode of transport instead of travelling by private vehicles.

II.

16.

- (a) Copper hydroxide
- (b) Hydrochloric acid

17. Reflex arc



18.

- (a) False. When two substances are rubbed on each other, unlike charges are developed on each.
- (b) True.

19. The given figure shows cell division. *Amoeba*, bacteria and algae reproduce by cell division.

20. Differences between land breeze and sea breeze:

Land breeze	Sea breeze
1. It blows from land to sea.	1. It blows from sea to land.
2. It blows at night.	2. It blows during the day.
3. Land breeze blows at night because the land cools down more quickly than the ocean surface.	3. Sea breeze blows during the day because the land heats more quickly than water.
4. The air above the sea is hotter than the air above the land.	4. The air above the land is hotter than the air above the sea.

III.

21.

- (a) Ice is the solid form of water.
- (b) When water gets frozen, it changes to solid ice. As a result, its volume increases.
- (c) Increase in volume causes a decrease in density of ice.
- (d) Because the density of ice is less than the density of water, ice floats on water.

22.

- (a) Gram. Gram is a pulse, while rice, wheat and bajra are cereals.
- (b) Banana. Banana is rich in minerals, while amla, lemon and orange are rich sources of vitamin C.
- (c) Cellulose. Cellulose is a complex polymer, while glucose, fructose and lactose are simple sugars.

23.

- (a) Fibrous foods contain cellulose.
- (b) Cellulose does not get digested in our body. It is neither used for tissue building nor for the production of energy.
- (c) Cellulose helps in the formation of stools.
- (d) It is essential to expel all the waste products from the body to stay healthy.
- (e) Therefore, it is important to include fibrous foods rich in cellulose in our diet.

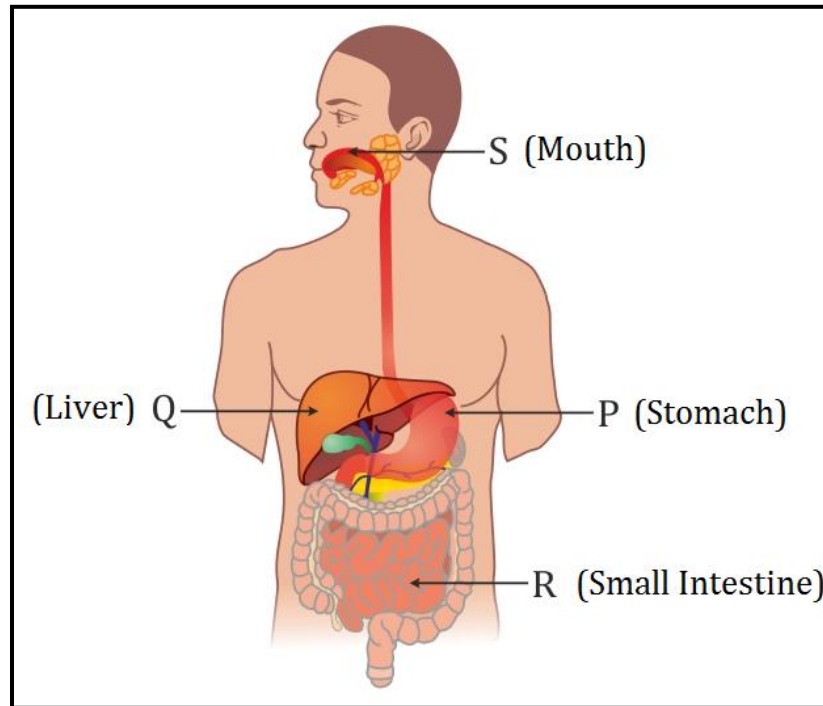
24.

- (a) If one body is electrically charged, it will attract another body which is oppositely charged.
- (b) The charged body will also attract another body which has no charge.
- (c) Therefore, attraction occurs under two conditions and we cannot be sure about the charges on the two bodies in contact with each other.
- (d) However, if a body is electrically charged, it will repel only that body which has a charge similar to itself.
- (e) Therefore, repulsion occurs only when the two bodies have like charges.
- (f) Thus, we can justify that repulsion is the real test of electric charge.

25.

- (a) When air is blown into one end of a flute, a column of specific length of the air vibrates and sound is produced.
- (b) Sonography is a technique to check the growth and health of the foetus inside the mother's womb. Some soft and delicate parts inside the human body can also be examined by the technique.

IV.
26.



27.

(a) Secretions of the endocrine glands called hormones are poured directly into the blood stream from where they reach the specific parts of the body. Because endocrine glands do not have ducts to carry their secretions, they are called ductless glands.

(b)

Endocrine glands	Functions
Thyroid gland	Secretes the hormone thyroxine which regulates the rate of metabolism of the body
Pancreas	Secretes the hormone insulin which regulates sugar metabolism in the body

28. Reproduction in higher animals:

- (a) In higher animals, the sexes are separate.
- (b) Two individuals, male and female, produce different types of sex cells.
- (c) The male produces the male gamete and the female produces the female gamete.
- (d) When the male and female gametes unite, they form a zygote.
- (e) In mammals, the zygote develops inside the mother's womb.
- (f) The zygote undergoes several divisions, grows and finally forms a new individual.

29.

(a) The animal species are on the verge of extinction because of the following human activities:

- Breeding of only useful animals
- Destruction and encroachment of natural habitats of animals
- Hunting, poaching or killing of wild animals for marketing

(b) Ways to control air pollution:

- Use of public transport instead of private vehicles
- Use of cleaner fuels such as CNG rather than petrol or diesel

30.

(a) Thermoware containers are made of two boxes fitted one inside the other.

(b) The outer box is made of a bad conductor material such as plastic.

(c) The inner box is made of a shiny metal.

(d) The space between the two boxes is filled with air.

(e) Because air is a bad conductor of heat, heat transfer by conduction and convection is prevented.

(f) The inner shiny surface of the thermoware further prevents heat loss because of radiation.

(g) The lid of the container is made of plastic which also prevents heat exchange with the surroundings.

(h) In this way, thermoware containers can minimise heat loss and help in keeping the food hot for long hours.