

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

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**SECTION A**

**1. (b)**

Hormones from the pituitary gland stimulate the testes to release testosterone in males.

**2. (d)**

A balanced diet should contain all components such as carbohydrates, lipids and proteins. These provide us with energy, while proteins are also essential for the development of bones. Other substances like minerals and vitamins are also needed in small quantities to keep us healthy.

**3. (a)**

Placenta provides nourishment to the growing foetus.

**4. (b)**

Internal fertilisation takes place in the oviducts where the egg fuses with the sperm.

**5. (a)**

The cell wall is a tough and rigid outer membrane present in the plant cell which permits the cells of plants, fungi and bacteria to exist in very dilute external media without bursting.

**6. (d)**

Genes are called the functional segments of chromosomes as they transmit the genetic information from parents to the offspring.

**7. (c)**

The lowest temperature at which a substance catches fire is called its ignition temperature. Substances with a very low ignition temperature catch fire easily.

**8. (b)**

Global warming is caused due to increased concentration of CO<sub>2</sub> in the atmosphere.

**9. (c)**

Carbon dioxide gas is produced by the reaction of dry powder of chemicals such as sodium bicarbonate or potassium bicarbonate with concentrated sulphuric acid. Near the fire, these chemicals react to release carbon dioxide gas.

**10.(b)**

An ideal fuel does not produce any harmful gases or leave behind any residue after burning.

**11.(b)**

Industrial chemicals combine with water vapour and fall down on the Earth as acid rain.

**12.(c)**

Burning of fossil fuels like coal and petroleum releases smoke which causes air pollution.

**13.(d)**

Chlorination can be done by adding chlorine tablets, bleaching powder or chlorine dioxide in water.

**14.(a)**

A magnetic needle deflects even due to small currents, and hence it should be used in the tester.

**15.(c)**

A cell is an example of conversion of chemical energy into electrical energy.

**16.(d)**

Lightning contains a tremendous amount of electrical energy. It is actually a great electric spark in the sky.

**17.(b)**

The mantle is the thick layer of hot, solid rock between the crust and the outer core.

**18.(c)**

It is only when light from an object enters our eyes that we see the object. The light may have been emitted by the object, or may have been reflected by it.

**19.(b)**

Cones sense colour.

**20.(d)**

Aryabhatta was the first satellite launched by India.

**SECTION B****21.**

- A - Cytoplasm
- B - Nucleus
- C - Cell membrane
- D - Nuclear membrane

**22.**

- (a) Zygote formation and development of an embryo from the zygote.
- (b) Embedding of the embryo in the uterus.

**23.** An animal which is genetically identical to its parent is called a clone. The cloned sheep named 'Dolly' was the first famous clone.

**24.**

- (a) Insulin controls the metabolism of sugar in our body.
- (b) Growth hormone is necessary for the normal growth of a person.

**25.** Goldsmiths blow the outermost zone of a flame while making gold jewellery as it is the hottest part of the flame.

The outermost zone of the flame is called the zone of complete combustion.

In this zone, the complete combustion of impurities takes place, helping the goldsmith to acquire pure gold for making jewellery.

**26.** Hot water from power plants and industries is released into the rivers. It raises the temperature of these water bodies, adversely affecting the animals and plants living in them. Hence, it is considered as a pollutant.

**27.** Wastewater from industries is called industrial effluent. It contains toxic chemicals including oils, greases, dyes, acids, alkalis and toxic metals such as cadmium and lead.

**28.** As copper from the solution gets deposited on the negative electrode, more copper from the positive electrode gets dissolved into the solution. Thus, the amount of copper in the solution remains constant throughout the process.

**29.** The Earth's lithosphere is fragmented into many pieces. Each fragment is called a tectonic plate or simply a plate. These plates are in continuous motion i.e. they float over hot magma.

**30.**

- i. The angle of incidence is always equal to the angle of reflection.
- ii. The incident ray, the normal at the point of incidence and the reflected ray all lie in the same plane.

**SECTION C****31.**

- i. Shower or bathe daily.
  - ii. Always wash your hands before and after meals and keep fingernails clean
  - iii. Wash your teeth and mouth before and after each meal.
  - iv. Change your clothes, especially undergarments, everyday.
  - v. Girls should take special care of cleanliness during the time of menstrual flow.
- (Any 4)

**32.**

- (a) Metamorphosis in insects is controlled by their hormones. In a frog, it is controlled by thyroxine, the hormone produced by thyroid.
- (b)
  - A- Pituitary gland
  - B- Thyroid gland
  - C- Adrenal gland
  - D- Pancreas

**33.** The cell membrane is also called the plasma membrane. It forms the outer boundary of the cell and is a thin delicate membrane.

Functions:

- i. The cell membrane gives shape and size to the cell.
- ii. It allows only certain selected substances to enter or leave the cell.
- iii. The cell membrane separates cells from each other and also from the surrounding medium.

**34.** Adrenal glands are located on the top of the kidneys. Adrenaline hormone is secreted by adrenal glands.

Functions:

- i. Adrenaline hormone maintains the correct salt balance in the blood.
- ii. It helps the body deal with stress or emergency situations by regulating the heart beat, breathing rate, blood pressure etc.

35. Fire can be extinguished in three ways:

**Removal of Combustible Materials**

- Fuel is a food for fire. So, when a fire starts all combustible materials should be removed so that the fire does not spread.

**Remove the Heat**

- The most common fire extinguisher is water, but it works only for ordinary fires.
- Water is used to remove the heat from a burning substance and to cool it to prevent it from burning further.
- When water is thrown on a burning substance, it cools below its ignition temperature and stops burning.
- In the case of electrical fires, water may conduct electricity and can cause electric shocks to people fighting the fire.
- Water is also not suitable for fires involving oil and petrol. Since water is heavier than oil, it sinks below the oil which continues to burn on the top.

**Cut off the Air Supply**

- For fires involving electrical equipment and inflammable materials like petrol, carbon dioxide is the best extinguisher.
- Carbon dioxide being heavier than oxygen covers the fire like a blanket.
- Different types of fire extinguishers can also be used. These cut off the supply of air by forming a layer of carbon dioxide gas around the fire.
- Removal of the cause or origin of fire can also be done.

36.

- (a) The unwanted and harmful substances which contaminate water are called water pollutants.
- (b) The consequences of water pollution on humans are:
- i. High concentrations of fine-particulate sulphate and nitrate can enter the cardiovascular and respiratory systems, resulting in disease or even death.
  - ii. Metals such as mercury and cadmium from soil deposits in lakes, streams, and reservoirs can accumulate in the tissues of fish, making them toxic to humans.
  - iii. Metals also can be leached from the soil into reservoirs, or from old lead and copper pipes directly into home water supplies, causing serious illness.

**37.**

- i. Forests: Acid rain damages forest trees by destroying their leaves. It causes the leaves of the trees to turn yellow and fall off. In the absence of leaves, the roots of trees cannot absorb water from the soil and they die due to lack of water.
- ii. Aquatic animals: Acid rain disrupts the reproductive cycle of aquatic species. It also leaches aluminum from the soil into the water, clogging the gills of fishes and altering their blood chemistry. As a lake becomes acidified, one species after another disappears. Due to high acidity of water, aquatic animals such as fish get killed.
- iii. Buildings and monuments: Acids present in acid rain react with the carbonates present in marble and limestone of buildings or monuments and corrode it slowly.

**38.**The method of coating one metal with another using electric current is called electroplating.

Uses:

- i. Metals which corrode easily can be protected by coating them with a metal which does not corrode easily.
- ii. An attractive and shiny appearance is given to the objects made of iron or steel.
- iii. Ornaments made of a cheap metal are coated with a more expensive metal to make them look more attractive.

**39.**Yes. This is because human body is a conductor of electricity. So, when we touch a charged object, our body conducts its charges to the Earth. This is why a charged object loses its charge, if we touch it with our hand. This phenomenon is known as electric discharge.**40.**

- (a) At the junction of the optic nerve and the retina, there are no sensory cells, so no vision is possible at that spot. This region of eye is called blind spot.
- (b) The Braille system helps visually challenged people to recognise words by touching. To make them easier to touch, the dots are raised slightly.

## SECTION D

**41.**

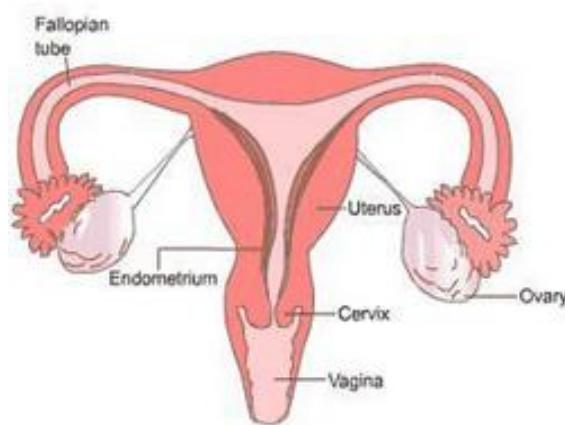
(a)

- The period of adolescence covers the 'teens' i.e. 13 to 18 or 19 years of age. Hence adolescents are also called teenagers.
- During puberty, the long bones i.e. the bones of the arms and the legs elongate and make a person tall. This results in a sudden increase in height.
- Sometimes in adolescent boys, the muscles of the growing voice box go out of control and the voice becomes hoarse.

(b) Adolescence is the time between childhood and adulthood whereas puberty is the time when adolescents become sexually mature.

**42.**

(a)



**Female reproductive system**

(b) Fallopian tube passes the ova into the uterus by its ciliary action.

**43.** The sources and harmful effects of air pollutants are:

(a) Sulphur dioxide -

Source: It is produced by the burning of coal in factories and thermal power plants. It is also produced by the burning of petrol and diesel in motor vehicles.

Effects: It causes respiratory problems and even permanent lung damage. Sulphur dioxide gas in polluted air produces acid rain which damages trees, aquatic animals, buildings, statues etc.

(b) Nitrogen oxides -

Source: They are produced by the burning of fuels like petrol and diesel in motor vehicles. They are also produced by the burning of coal in factories and thermal power plants. Oil refineries too produce and emit nitrogen oxides into the air.

Effects: Nitrogen oxides attack the breathing system and lead to lung congestion. They also attack the skin. These oxides present in polluted air produce acid rain and also contribute to the formation of smog.

(c) Carbon monoxide -

Source: It is produced by the incomplete combustion of large quantities of fuels such as wood, coal, kerosene, petrol, factories, motor vehicles etc. Cigarette smoke also contains carbon monoxide.

Effects: It is a very poisonous gas. When inhaled, carbon monoxide combines with the haemoglobin in the blood and reduces the oxygen-carrying capacity of blood. Due to this, there is a lack of oxygen in the body since the blood is not able to carry sufficient oxygen to the body parts. This results in suffocation when excessive carbon monoxide is inhaled, and may even cause death.

44.

(a)



(b) Uses of artificial satellites are given below:

- They are used for communication purposes such as long distance transmission of television programmes, telephone calls etc.
- They are used for weather forecasting and for predicting floods and cyclones etc.