

G D GOENKA PUBLIC SCHOOL, MORENA
SCIENCE NOTES
CLASS-VII
Ch-5 (Acids, Bases & Salts)

Q.1. Ammonia is found in many household products, such as window cleaners. It turns red litmus blue. What is its nature?

Ans. Ammonia has basic nature.

Q.2. Name the source from which litmus solution is obtained. What is the use of this solution?

Ans. Litmus solution is extracted from lichens. It is used to determine whether the given solution is acidic or basic.

Q.3. Is the distilled water acidic/basic/neutral? How would you verify it?

Ans. Distilled water will be neutral. We can verify it by showing that neither blue nor red litmus paper changes its colour when dipped in it.

Q.4. Describe the process of neutralisation with the help of an example.

Ans. The reaction between an acid and a base is known as neutralisation. Salt and water are produced in this process with the evolution of heat.

Antacids like milk of magnesia (magnesium hydroxide), baking soda, etc. which contain a base are used for reducing acidity in stomach when excessive acid released by glands.

Q.5. Explain why:

- (a) An antacid tablet is taken when you suffer from acidity.
- (b) Calamine solution is applied on the skin when an ant bites.
- (c) Factory waste is neutralised before disposing it into the water bodies.

Ans. (a) We take an antacid such as milk of magnesia to neutralise the excessive acid released in stomach.

(b) Ant injects an acidic liquid (Formic acid) into the skin on biting which causes inflammation, to the skin. The effect of the acid can be neutralised by rubbing. Calamine solution which contains zinc carbonate which is very weak base and causes no harm to the skin.

(c) The wastes of factories contain acids. If acids are disposed off in the water body, the acids will harm the organisms. So factory wastes are neutralised by adding basic substances.

Q.6. Three liquids are given to you. One is hydrochloric acid, another is sodium hydroxide and third is a sugar solution. How will you identify them? You have only turmeric indicator.

Ans. Name of the substances Effect on turmeric indicator

1. Hydrochloric acid Yellow to blue
2. Sodium hydroxide Yellow to red

3. Sugar solution No change

Q.7. Blue litmus paper is dipped in a solution. It remains blue. What is the nature of the solution? Explain.

Ans. (i) It can be identified on the basis of the following observations : Bases change the colour of litmus paper to blue. As the colour of blue litmus paper is not affected, the solution must be basic.

(ii) If the solution is neutral, even then colour of litmus will not change.

Q. 8. Consider the following statements:

(a) Both acids and bases change colour of all indicators.

(b) If an indicator gives a colour change with an acid, it does not give a change with a base.

(c) If an indicator changes colour with a base, it does not change colour with an acid.

(d) Change of colour in an acid and a base depends on the type of the indicator. Which of these statements are correct?

(i) All four (ii) (a) and (d) (iii) (b) and (c) (iv) only (d)

Ans. (ii) (a) and (d)

Ch-8 (Respiration in Plants & Animals)

Q1. Why does an athlete breathe faster and deeper than usual after finishing the race?

Answer: During the run, the demand of energy is high but the supply of oxygen to produce energy is limited. Therefore, anaerobic respiration takes place in the muscle cells to fulfill the demand of energy. After finishing the race, an athlete breathe faster and deeper than usual so that more oxygen is supplied to the cells.

Q2. List the similarities and differences between aerobic and anaerobic respiration.

Answer: Similarity:

(i) In both aerobic and anaerobic respiration, food is broken down to release energy.

(ii) Both takes place inside cells.

(iii) Both produces byproducts.

Differences:

Aerobic Respiration

(i) It takes place in the presence of oxygen.

(ii) Energy is released in higher amount.

(iii) Carbon dioxide and water are produced as byproducts

(iv) It is a slow process.

Anaerobic Respiration

(i) It takes place in the absence of oxygen.

(ii) Energy is released in lesser amount.

(iii) Carbon dioxide and water are produced as byproducts.

(iv) It is a fast process.

(v) Examples: Animals and plants cells.

(v) Examples: Human cells, yeast, Bacteria etc.

Q3. Why do we often sneeze when we inhale a lot of dust-laden air?

Answer:

We often sneeze when we inhale a lot of dust-laden air to expel out these foreign particles. These particles get past the hair in the nasal cavity and irritate the lining of the cavity which results in sneezing.

Q4. Take three test-tubes. Fill each of them with water. Label them A, B and C. Keep a snail in test-tube A, a water plant in test-tube B and in C, keep snail and plant both. Which test-tube would have the highest concentration of CO₂?

Answer:

Test-tube A will have the highest concentration of CO₂ because snail will take in oxygen and gives out CO₂.

In test-tubes B and C, the CO₂ will be utilized by the water plant for synthesizing food and hence there will be less concentration of CO₂ in these.

Q5. The mountaineers carry oxygen with them because:

- (a) At an altitude of more than 5 km there is no air.
- (b) The amount of air available to a person is less than that available on the ground.
- (c) The temperature of air is higher than that on the ground.
- (d) The pressure of air is higher than that on the ground.

Answer:

The mountaineers carry oxygen with them because (b) The amount of air available to a person is less than that available on the ground.

Ch-9 (Transportation of Materials)

Q.1. Why is transport of materials necessary in a plant or an animal? Explain.

Ans. Transport of materials is necessary for plants or animals because due to it the nutrients and oxygen are made available to all the parts of the body. If the transport of necessary nutrients and oxygen does not take place in the body, the body will not be able to survive.

Q.2. What will happen if there are no platelets in the blood?

Ans. The blood platelets are responsible for the clotting of the blood. When some injury occurs blood starts flowing. But it clots on its own. If there are no platelets, the blood will not be able to clot and keep on flowing. Huge loss of blood ultimately causes death.

Q.3. What are stomata? Give two junctions of stomata.

Ans. There are small openings on the lower surface of the leaves. These pores are called stomata. These openings are surrounded with guard cells.

Functions of stomata:

1. It helps in the transpiration of water, i.e., the loss of excess water from the plant.
2. Loss of water from the stomata creates an upward pull, i.e., suction pull which helps in absorption of water from the roots.
3. They help in exchange of gases.

Q.4.Does transpiration serve any useful function in plants? Explain.

Ans.(i) It helps to enhance the absorption of water and dissolved minerals by creation of a suction pull.

(ii) It helps in getting rid of the excess water.

(iii) It helps in transport of water and minerals to leaves and leaves use the water for photosynthesis. ‘

(iv)It produces a cooling effect on the plant

Q.5.What are the components of blood?

Ans.There are four components of blood:

(i) Plasma is a liquid part of blood which is yellowish in colour and contain 90% water. It contains food, enzymes, wastes and proteins etc

(ii) Red blood cells are disc shaped cells containing red coloured pigment called haemoglobin in it. Haemoglobin helps in transportation of oxygen.

(iii) White blood cells are the fighting cells which protect us against bacteria and foreign materials causing infections.

(iv) Platelets help in clotting of the blood

Q.6.Why is blood needed by all the parts of a body?

Ans. Blood is needed by all the parts because it contains the digested food and oxygen in it. It supplies the oxygen and digested food to various parts of the body to provide essential energy to them which helps the body to perform various functions

Q.7.What makes the blood look red?

Ans. A red pigment called haemoglobin gives the blood its red colour. This pigment helps in carrying oxygen to various parts of the body by blood

Q.8.Describe the function of the heart.

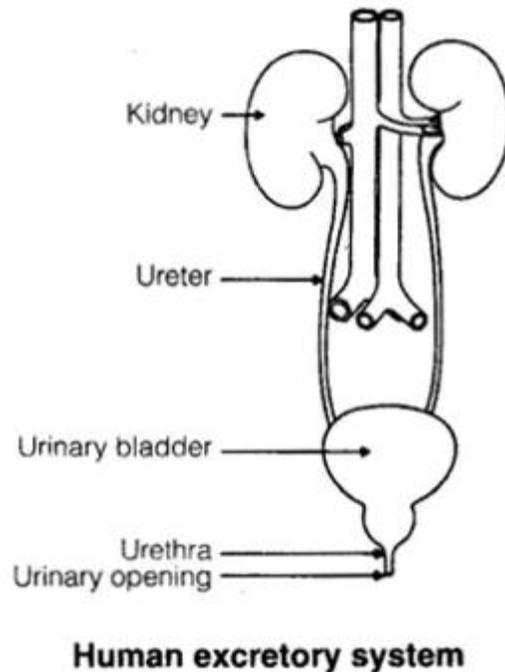
Ans. The right auricle and ventricle receive blood with carbon dioxide from all parts of the body. The collected blood is then pumped to the lungs for the purification. In lungs, the exchange of gases takes place and purified blood is sent back to left auricle. It pumps it to the left ventricle, which in turn pumps off the purified blood to all parts of body through arteries

Q.9.Why is it necessary to excrete waste products?

Ans. Certain waste and toxic products are formed during functioning of body cells. The waste products

like urea etc. are toxic. When these toxic materials are not removed from the body, they get mixed with blood and can damage the cells of body. It is necessary to remove such poisonous waste materials from our body.

Q.13. Draw a diagram of the human excretory system and label the various parts.



Ch-10 (Reproduction in Plants)

Q.1. Describe the different methods of asexual reproduction. Give examples.

Ans. Different methods of asexual reproduction are:

- (a) Binary Fission: This process takes place in unicellular organisms. Parent cell elongates and gets divided into two identical daughter cells. Each daughter cell grows into an independent adult.
- (b) Endospore Formation: In this method the spore wall is formed around a bacterial cell to form an endospore. This endospore germinates to form an active bacterium under favourable conditions.
- (c) Fragmentation: In this process, body of the organism breaks up into two parts. Then each part grows into a new filament thus forming two organisms from a single one.
- (d) Spore Formation: The spores are tiny spherical unicellular structures protected by thick wall. The spores are stored in a hard outer covering and this is called sporangium. Under favourable conditions the hard cover breaks and spores spread for germination.
- (e) Budding: In yeast, new organisms are produced by the bud formation from the parent organism. After growing to full size, the bud gets detached and forms a new independent individual.
- (f) Vegetative propagation: When vegetative parts of a plant like stems, leaves and root etc., give rise to new ones, it is called vegetative propagation.

Q.2. Explain what you understand by sexual reproduction.

Ans. Sexual reproduction means involvement of two parents in the process of reproduction. It is found mainly in higher plants where male gamete and female gamete fuse to form a zygote. These zygotes develop into individuals which are not identical. Offsprings inherit the characteristics of both the parents. In sexual reproduction both parents survive after the process of reproduction.

Q.3. State the main difference between asexual and sexual reproduction.

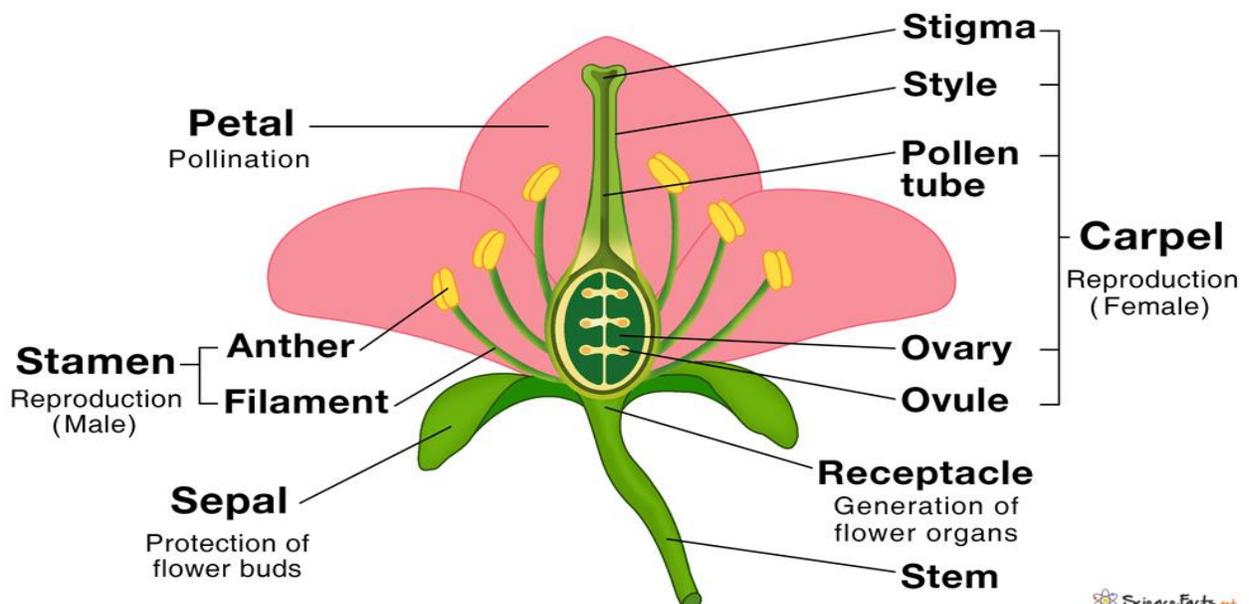
Ans.

Asexual reproduction	Sexual reproduction
1) Involves single organism.	1) Involves one or two organisms.
2) No production of gametes.	2) Male and female gametes are produced.
3) There is no fusion of gametes.	3) It involves fusion of male and female gametes.
4) It requires only mitotic divisions.	4) It requires meiotic division followed by mitotic division.
5) It produces offsprings that are identical to the parent.	5) Offspring will have some characters from male parent and others from female parent. Some characters may not be present in either of the parents.
6) In this chance of genetic variation is only through random mutation.	6) In this reproduction there is more chance for genetic variation.
7) Asexual reproduction is not very useful for natural selection in evolution of species.	7) Sexual reproduction is highly useful for natural selection in evolution of species.
8) It occurs by budding, fragmentation, sporulation.	8) It occurs due to pollination and fertilization.

Q.4. Sketch the reproductive parts of a flower.

Ans.

Parts of a Flower



Q.5.Explain the difference between self-pollination and cross-pollination

Ans.

Difference between Self - Pollination and Cross - Pollination

Self pollination	Cross pollination
1.Occurs in the same flower or between two flowers of the same plant. 2. Pollination usually occurs before blooming. 3.Does not need the presence of other plants of the same species nearby. 4.Depends little on pollinating agents 5. Purity of species preserved 6. No new variety develops.	1. Occur between two flowers of two different plants. 2. Pollination occurs after blooming. 3. Needs the presence of other plant of the same species nearby. 4. Depends completely on pollinating agents. 5. Purity of species is not preserved. 6. Possibilities of origin of new varieties.

Q.6.How does the process of fertilization take place in flowers?

Ans.When the pollen grain reaches the stigma of a same species flower, it starts

growing out into the pollen tube of the stigma. This tube continues to grow inside the style till it reaches the ovule. Male cells are released into the ovule for the fertilization with the female egg cell and thus the zygote is formed. After this process of fertilization, the ovary develops into fruit and ovule into seeds.

Q.7.Describe the various ways by which seeds are dispersed.

Ans. Following are the ways in which the seeds are dispersed:

- (i) Some light seeds like that of madar, which are hairy, dry and small are carried away by the wind to different places.
- (ii) Spiny seeds and fruits like that of xanthium and urena, stick to the clothes of passers by and animals. These seeds are carried away by these agents to different places.
- (iii) In some plants having heavy seeds like that of coconut, water acts as the dispersing agents.
- (iv) Some seeds are dispersed with the fruit burst like in case of balsam and castor.