

13) What are water soluble vitamins? What are fat soluble vitamins?

A) 'B Complex and Vitamin C are water soluble Vitamins.

Vitamin A, D, E and K are fat soluble Vitamins.

14) What are the end products of photosynthesis?

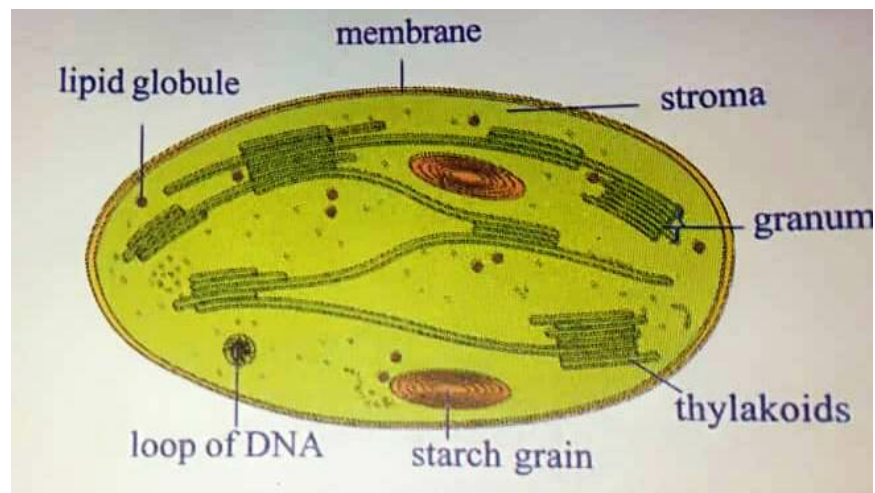
A) Glucose, oxygen, water.

15) What are the differences between light reaction and Dark reaction?

A)

Light reaction	Dark reaction
1 Occurs in the grana of the chloroplast	1. Occurs in the stroma of the chloroplast
2. ATP, NADPH, and O ₂ are end products	2. (Glucose) is the end product
3. Assimilatory powers are formed.	3. Assimilatory powers are consumed.
4. It depends on light.	4. It does not depend on light.
5. Photolysis occurs in Light reaction	5. Carbon fixation occurs in Dark reaction.

16. Explain the structure of a chloroplast with a neatly labeled sketch ?



Ans: 1. In green plants there are special membrane bound organelles called chloroplasts.

2. Chloroplasts occur mainly in mesophyll cells of leaves.

3. Typical chloroplasts are disc shaped and consist of 3 membranes.

4. The third layer that forms stacked sack-like structures is called grana. It is the site for trapping solar energy.

5. In the chloroplast there is fluid filled portion called stroma, responsible for enzymatic reactions

leading to the synthesis of glucose, which in turn join together to form starch.

6. These chloroplasts are green in colour due to a pigment called chlorophyll.

17. What are the connecting substance between light reaction and dark reaction.

A. ATP, NADPH, are the connecting substance between light reaction and dark reaction. ATP, NADPH (assimilatory powers) formed in light reaction are used in dark reaction to produce glucose.

18. what is the role of HCL in stomach?

A. 1. HCl found in the stomach helps in killing harmful germs which may have come along with the food.

2. HCl creates an acidic medium which facilitates the action of pepsin.

3. Pepsin is activated in the presence of HCl.

what is the role of saliva in digestion?

1. Saliva is secreted by 3 pairs of salivary glands in the mouth.

2. Human saliva contains an enzyme called amylase (ptyalin) that converts starch into maltose (sugar).

3. Saliva makes the food wet and slippery.

What process do you follow in your laboratory to study the presence of starch in leaves?

A. 1. Take a leaf of a plotted plant which has soft, thin leaves.

2. Boil the leaf in a methylated spirit over a water bath till it becomes pale white due to removal of chlorophyll.

3. Spread the leaf in a dish and add a few drops of tincture Iodine/ Betadine solution on it.

4. Observe the leaf.

5. The presence of starch will be indicated by a blue- black colour.

9. Differentiate the following

Inspiration and expiration

S.no	Inspiration	Expiration
1	Intake of air into lungs	Expulsion of air from the lungs.
2	Air pressure in lungs is less than atmospheric pressure.	Air pressure in lungs is greater than atmospheric pressure.
3	Increase in volume of thoracic cavity.	Decrease in volume of thoracic cavity.
4	Oxygen is more in inhaled air.	oxygen is low in exhaled air.
5	carbon dioxide and water vapour are less in inhaled air.	carbon dioxide and water vapour are more in exhaled air.

10. State two similarities between aerobic and anaerobic respiration?

1. Both aerobic and anaerobic respirations release energy by breaking down of glucose.
2. The energy produced by these processes is used to carry out various functions of our body.
3. Glycolysis takes place in Both respirations.

11. Why does the rate of breathing increase while walking uphill at a normal pace in mountains? Give two reasons.

Ans. The rate of breathing increases while walking uphill at a normal pace in Mountains because -

1. As we go up the hill above sea level, the concentrations of O₂ is greatly reduced. So we have to breathe more to get required amount of O₂.
2. While walking the uphill, a lot of oxygen is used by our body to release energy from glucose.
4. Hence, the rate of breathing is increased to supply sufficient amount of O₂ while walking uphill.

12. What is role of epiglottis and diaphragm in respiration?

Ans. EPIGLOTTIS: 1. It is flap like muscular valve that controls movement of air and food towards their respective passages.

2. It prevents the entry of food material into windpipe.

DIAPHRAGM: Diaphragm plays an important role in respiratory moments (Inhalation, Exhalation)

4. It is a dome shaped sheet of muscle that separates the chest cavity from the abdomen cavity.

13. How does exchange of gases take place at blood level?

When the blood is supplied to tissues, oxygen is diffused into tissues from blood and carbon dioxide is diffused into blood from tissues.

14. After a vigorous exercise or work we feel pain in the muscles. What is the relationship between pain and respiration?

A 1. During vigorous exercise O_2 gets used up faster in the muscles that can be supplied by the blood.

2. Whenever anaerobic respiration takes place in human muscles, glucose is converted into lactic acid and small amount of energy is released.

3. The accumulation of lactic acid in the muscles causes muscular pains or cramps.

15. What questions will you ask about pulmonary respiration if you have a chance to meet a pulmonologist?

I would like to ask the following questions:

What precautions are to be taken to keep the lungs healthy?

What are different types of respiratory diseases?

What are the different treatments available for respiratory diseases?

16. How do mangrove plants respire?

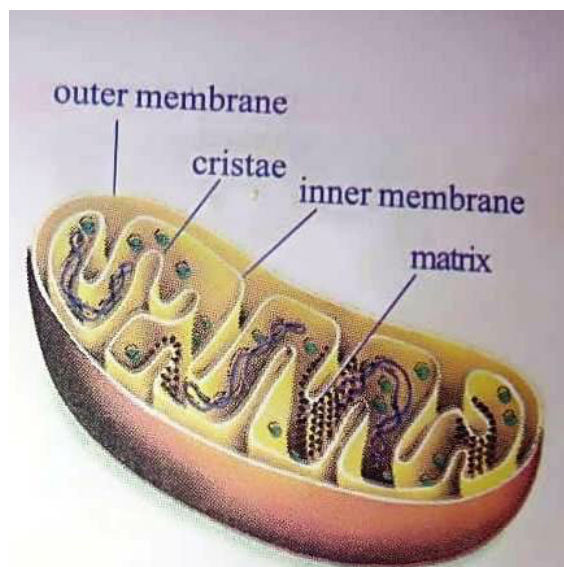
Mangrove plants are growing in marshy and waterlogged soils.

Mangrove plants are respirating through aerial roots.

Exchange of gases takes place through pneumatophores.

What is the pathway taken by air in the respiratory system? Explain with the labeled diagram.

17. Explain the structure of mitochondria with the help of a labeled diagram.



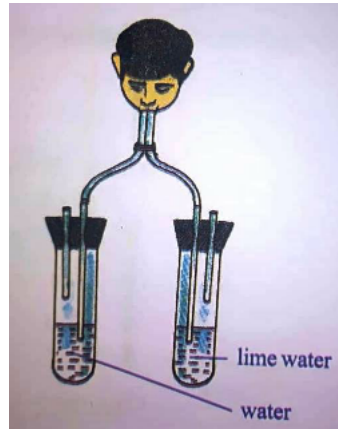
Mitochondria are in oval or round shaped cell organelles found in eukaryotic cells.

Mitochondria have two membranes.

Inner membrane has number of folding like structures these are called cristae.

The substance present in the inner membrane is called matrix.

18.How can you prove that carbon dioxide is present in exhaled air?



Aim to prove that carbon dioxide is present in exhaled air

Requirements: test tubes, lime water, water, glass tubes, rubber cork.

Procedure: take two test tubes.

Take some water in first test tube and lime water in another test tube.

Insert glass pipes in to these test tubes through the rubber corks.

Blow the air into the test tubes

Observation: no colour change is observed in water

Lime water turns to milky white.

Reason carbon dioxide in the exhaled air turns the lime water into milky white.

3.Transportation the circulatory system

1.Define edema

A.Swelling of limbs due to accumulation of tissue fluid or lymph.

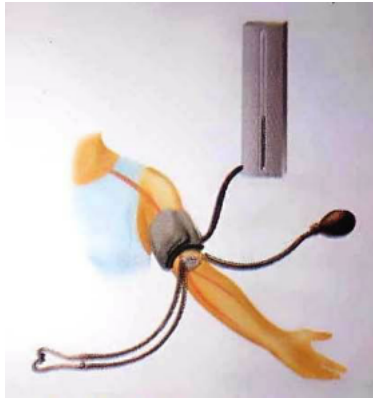
Generally it is happening during long journeys.

2.What is pulse?

A.A rhythmic moments observed at wrist due flowing of blood through arteries is called pulse.

Pulse rate is equal to heartbeat.

3. What is tissue fluid?



9. What is the relationship between plasma and blood?

A. Intracellular fluid of the blood is called plasma plasma also called as liquid matrix

Blood cells are floating in plasma

Blood cells and plasma together called blood

10. What are the three main blood vessels in our body?

A. Arteries: they supply blood to all body parts from heart

Veins: they collect blood from all body parts

Blood capillaries: they connect arteries and veins

11. Which is the largest artery our body what could be the reason

A. The largest artery in our body is Aorta or systemic artery

It supplies oxygenated blood to all body parts

12. Difference between systole and diastole

<u>systole</u>	<u>diastole</u>
Contraction phase of the chambers of heart is called systole	Relaxation phase of the chambers of the heart is called diastole
Blood supplies to other body parts	Blood collects from other parts
Systolic pressure is 120 mm/hg	Diastolic pressure is 80 mm/hg
Duration of systole is 0.38-0.49sec	duration of diastole is 0.31-0.42 sec

13. What is root pressure how does it help to plant

A. Pressure exerted by water absorbed by root hair is called root pressure

Root pressure helps to supply the water and minerals to all body parts in smaller plants.

In taller plants root pressure and transpiration help in conduction of water.

14. Read the given para and name the parts of the heart.

Ans: We have observed that the heart is divided into four chambers by muscular structure. Any structure that divides two chambers is known as septum.

Now let us try to name the septa present in the heart.

a) The septum that divides the two atria can be named as.....

b) The septum that divides the two ventricles can be named as.....

c) The septum that divides the atrium and ventricle can be named as.....

The holes that connect two chambers are called apertures. Let us try to name the apertures which connect the atria and ventricles.

d) The aperture that connecting the right atrium and right ventricle can be named as

e) The aperture that is connecting the left atrium and left ventricle can be named as

Any structure that closes an aperture, and allows one way movement of materials is called valve. Now, let us name the valves that are present in the chambers of the heart.

f) The valve that is present between left atrium and ventricle can be named as.....

g) The valve that is present between right atrium and right ventricle can be named as.....

A. a). Inter atrial septum.

b) Inter ventricular septum.

c) Inter atrial ventricular septum.

d) Right atrioventricular aperture.

e) Left atrioventricular aperture.

F) Bicuspid (Mitral) valve.

g) Tricuspid valve.

4. EXCRETION

1.What is excretion ?

Excretion is the removal of material from living beings.	Secretion is the movement of materials from one point to other point.
Excretion is passive in nature.	Secretion is active in nature
tear, urine, CO ₂ and sweat	enzymes, hormones and saliva.

10) Name different excretory organs in human body and excretory material generated by them?

A)

Excretory organ	material
1.kidney	urine
2.Lungs	Carbon dioxide, water vapour
3.Skin	Sweat and sebum
4.Liver	Bile pigments, Urochrome.
5.Intestine	Faeces with nitrogenous wastes
6.Salivary glands	Nitrogenous wastes.

11. What is meant by osmoregulation? How is it maintained in human body?

- A) 1. Osmoregulation is the process of maintaining salt and water balance within the body.
2. Kidneys are the main

osmoregulatory organs in human body.

3. Nephron is functional unit of the kidney. It filters blood and generates urine.

4. The hormones like anti diuretic hormone and aldosterone increase the permeability of collecting ducts of nephrons.

5. It leads to the maximum absorption of water and prevent it from being excreted.

6. Vasopressin hormone is also regulates the water which is passed out through urine.

7. Deficiency of vasopressin causes excessive, repeated dilute urine. This condition is called diabetes insipidus.

12) Urine is slightly thicker in summer than in winter. Give reason?

A)

1. Generally in summer more amount of water is excreted out in the form of sweat. The body has to retain the water against the heat of the sun.

2. Vasopressin is secreted by adrenal gland, which helps in the formation of concentrated urine and prevents the excess loss of water from the body.

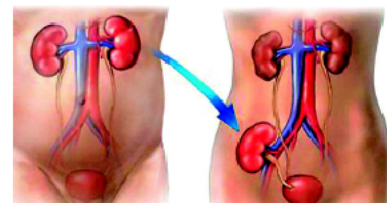
13. What may happen if the waste materials are not sent out of the body?

A) As a result of metabolic processes, the waste substances are formed which have to be eliminated.

If they are not sent out of the body, they cause harm to the body and disturb the metabolic cycles and create illness.

14. What do you observe from the diagram?

A) Kidney transplantation from a healthy person to Kidneys failed person.



A) Abscisic acid

8. Diabetes mellitus is caused due to the inefficiency of which organ?

A) Pancreas

9. Which mechanism controls the action of hormones?

A) Feed back mechanism

10. Pancreas : insulin :: Testes :

A) testosterone

11. What is a synapse? How is it useful in transferring information?

- A) 1. Synapse is a functional region of contact between two neurons, where information from one neuron is transmitted or relayed to another neuron.
2. Synapses ensure that nerve impulses travel in only one direction.

12. Distinguish between Stimulus and Response ?

Stimulus	response
1. Stimulus is a signal of change	1. An effect of a change in the environment of the organism.
2. Stimulus comes from surroundings.	2. Response comes from the nervous system of the body.

13. The axon of a nerve cell in the hand is shorter than the axon of a nerve cell in the leg. Do you support this statement? Why?

A) 1. Yes, I support this statement.

2. The axon of a nerve cell in the hand is shorter than the axon of a nerve cell in the leg.

3. Because the sciatic nerve in the leg contains neural axons that extend from the spinal cord all the way to the muscles in the foot, a distance of over a 1 meter.

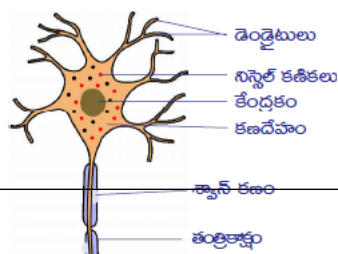
4. Usually the length of the leg is more in size than the hand. Hence the axon of a nerve cell in the hand is shorter than the axon of a nerve cell in the leg.

14. What happens if you put a potted plant towards the window in a room?

A) The plant bends towards the direction of light. It is called phototropism.

15. Draw a neat labelled diagram of a neuron?

A)



9. How is Acrosome is helpful for sperm cell?

A) Acrosome is helpful to penetrate into the ovum and release the nucleus into it.

10. Why do external fertilizing animals produce a huge number of eggs?

A) There is high risk in external fertilization and minimises the chances of fertilization due to external factors.

11. Give examples and explain what is meant by external fertilisation?

A) 1. If the fusion of sperm and ova occurs outside the body of the animal, it is called external fertilization.

2. External fertilization mostly occurs in aquatic animals like fish and frog.

12. Write the differences in between mitosis and meiosis?

A)

Mitosis	Meiosis
1.Occurs in somatic cells.	1.Occurs in germ cells.
2.Nucleus divides only once.	2.Nucleus divides twice.
3.Two daughter cells are formed.	3.Four daughter cells are formed.
4.Daughter cells are diploid.	4.Daughter cells are haploid.
5.Occurs more frequently.	5.Occurs less frequently

13. What type of reproduction method seen in the diagram? In which organism does it seen?

A) Fission, paramecium

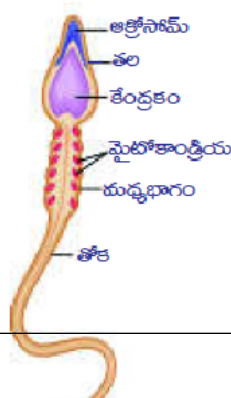


14. Identify the leaf of the plant?

A) Bryophyllum



15. Draw a neat labeled diagram of sperm cell?



16. What are the different modes of asexual reproduction? Cite them with examples.

A) a. Fission: In this process the single celled organisms split into two or more.
Ex: paramoecium and bacteria.

b. Budding: A bud grows on parental organism. When it totally grows, it separates from the parent and survives individually. **Ex:** Yeast.

c. Fragmentation: A separate piece of parent organism grow as individual. **Ex:** Land plants, algae, fungi, flatworms, spirogyra.

d. Parthenogenesis: It is a shift of process from sexual to asexual reproduction. There is no need of two parents. Female gametes develop into zygote without fertilization. **Ex:** Seedless fruits in watermelon and grapes, bees.

e. Regeneration: The broken piece of an organism grow into separate individuals. **Ex:** Planaria.

f. Vegetative propagation: If the offspring produced by the vegetative parts of plants.it is called vegetative propagation. It is of two types i) natural propagation. **Ex:** Bryophyllum, Carrot, Rhizopus, potato. ii) Artificial propagation. **Ex:** Rose, Mango, Apple.

17. Draw a neat labeled diagram of human reproductive system?

14. What is law of independent assortment?

A. In the inheritance of more than one pair of traits, the factors responsible for each pair of traits are distributed independently to the gametes.

15. What are the characters Mendel selected for his experiments on pea plant?

Ans: Mendel has selected the following contrasting characters in pea plant.

1. Flower colour (Purple – White)
2. Flower position (Axial – Terminal)
3. Seed colour (Yellow – Green)
4. Seed shape (Round – Wrinkled)
5. Pod shape (Inflated – Constricted)
6. Pod colour (Green – Yellow)
7. Stem length (Tall – Dwarf)

16. Mendel selected a pea plant for this experiment. Mention the reasons in your point of view?

Ans: 1. Mendel chose pea plants for studying inheritance because Garden pea plants have following advantages

They have well defined characters,
bi sexual flowers,
predominantly self fertilization,
early hybridization and annual plants.

9. Our Environment our Concern

1. Expand BOD.

A) Biological Oxygen Demand

2) "The insect eats grass, the insects was eaten by frog, the frog was eaten by Snake and the Snake was eaten by eagle. In this food chain what we call the eagle?"

A) Top Carnivore

3) what happens to the amount of energy transferred from one step to the next level in a food chain?

A) 80-90% of energy loses.

4) In a food chain, the role or place of an organism in a food chain? what we call this place of an organism in a food chain?

A) Niche.

5) The food chain starts with?

A) Producers.

6) The Pyramid which shows the number of organisms in a level?

A) Naturally available in large quantities in nature are called natural resources e.g: air, water.

10. What are renewable resources?

A) Some resources are replenished even when used.

These do not shrink as they are used are called renewable resources. E.g.: air, water

11. What are the non-renewables?

A) Some resources are depleted as they are used will not be replaced. E.g .: petroleum products.

12. What are percolation ponds?

A) Percolation ponds are water reservoirs that are built across rocks and earthen embankments across waterways.

13. The natural resources becoming extinct so fast. What happened due to this?

A) 1. If natural resources are depleted, coal and petroleum products will dry up.

2. Industries will be closed.

3. The transportation system will be closed.

4. Society is facing a shortage of energy resources.

14. Go to the petrol bunk and make a questionnaire with the manager?

A) 1. Has petrol consumption increased more than ever?

2. Why are petrol rates rising?

3. What are the alternative sources of petrol consumption ?.

4. What will be the future petrol consumption if this situation continues?

15. What is sustainable development?

A) Sustainable development is about giving priority to both development and conservation and sustaining the natural resources needed for the future.

In a nutshell, the same sustainable development happens when we use the environment.

16. What are the recommended measures to use oil resources sparingly? What are the consequences if not used?

A) Tips to use oil sparingly:

1) Public transport system should be used.

2) Do cycling or walking short distances.

3) Preference should be given to vehicles that give high mileage

(4) Solar vehicles should be developed.

-End-

