



A.P. STATE 8th CLASS

BIOLOGY



NOTES

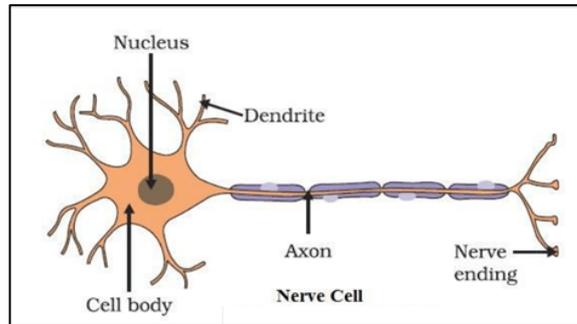
V. TRIVIKRAMA RAO



1. Cell Structure and Functions

1. Make a sketch of the human nerve cell. What function do nerve cells perform?

1. Function of nerve cells: The function of the nerve cell is to receive and transfer messages.
2. It helps to control and coordinate the working of different parts of the body.



2. Write short notes on the following.

- (a) Cytoplasm (b) Nucleus of a cell

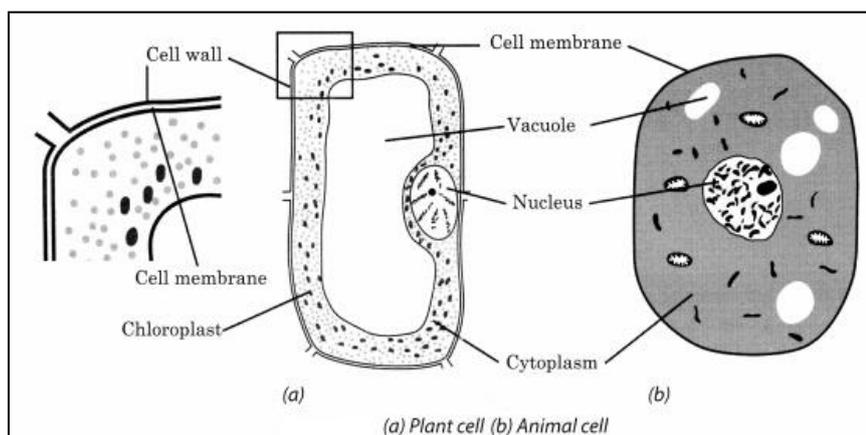
Cytoplasm:

1. The jelly-like substance found between the nucleus and the cell membrane is called cytoplasm.
2. It is made up of basic elements like C, H, O, N.
3. Various other organelles, like mitochondria, Golgi bodies, Ribosomes, etc., of cells are present in the cytoplasm.

Nucleus of a cell:

1. It is generally spherical and located in the centre of the cell.
2. Nucleus is separated from the cytoplasm by a membrane called the nuclear membrane.
3. Nucleus also contains nucleolus and chromosomes.
4. Nucleus helps in inheritance and acts as control centre of the activities of the cell.

3. Make sketches of animal and plant cells. State differences between them



Plant cell	Animal cell
1. The outermost covering is a cell wall and it is made of cellulose.	1. The outermost covering of animal cell is the plasma membrane.
2. Plastids are present in plant cells.	2. Plastids are absent in animal cells.
3. Large vacuoles are present in plant cells.	3. Vacuoles are absent or small in size.
4. Centrosome is absent.	4. Centrosomes is present.

4. Where are chromosomes found in a cell? State their function.

1. Chromosomes are present in the nucleus.
2. The functions of chromosomes are to carry genes on them and to transfer the character from parents to the next generation.

5. State the difference between Eukaryotes and Prokaryotes.

Eukaryotes	Prokaryotes
1. Nucleus of the cell has nuclear membrane.	1. Nucleus is not bounded by membrane.
2. Eukaryotes have membrane-bound organelles.	2. Prokaryotes lack membrane-bound organelles.
3. Example: Higher plants and animals.	3. Example: Bacteria and blue-green algae.

6. 'Cells are the basic structural units of living organisms.' Explain.

Different cells combine to form tissues and tissues combine to form organs.

Similarly, organs combine to form body. Thus they are termed as the basic structural unit of every living organism.

7. Explain why chloroplast are found only in plant cells?

Chloroplasts are plastids required for the food making process, called photosynthesis, and thus they are only present in plant cells.

8. Complete the crossword with the help of clues given below.

Across:

1. This is necessary for photosynthesis.
3. Term for component present in the cytoplasm.
6. The living substance in the cell.
8. Units of inheritance present on the chromosomes.

Down:

1. Green plastids.
2. Formed by collection of tissues.
4. It separates the contents of the cell from the surrounding medium.
5. Empty structure in the cytoplasm.
7. A group of cells.



9. How do you differentiate protoplasm from cytoplasm ?

1. Cytoplasm is the jelly-like substance occupying most of the space inside the cell.
2. Protoplasm includes the cell membrane, the cytoplasm and the nucleus.

10. What are the functions of the cell membrane and cell wall?**Cell membrane:**

1. It protects the cell.
2. It provides shape to the cell.
3. It allows materials to enter and leave the cell through the tiny holes.

Cell wall:

1. It provides rigidity to the cell.
2. It protects against mechanical stress and infection.

11. What do you mean by unicellular and multicellular organisms?

1. Organisms which consist of only one cell are called unicellular organisms.
2. Organisms made up of more than one cell are called multicellular organisms.

12. What are pseudopodia in amoeba? What are the functions of pseudopodia?

1. Pseudopodia is a temporary arm-like projection.
2. Pseudopodia facilitate movement and help in capturing food.

13. Are the cells in an elephant larger than the cells in a rat?

1. The size of the cells has no relation with the size of the body of the animal or plant.
2. It is not necessary that the cells in the elephant be much bigger than those in a rat.
3. The size of the cell is related to its function.

14. Why are plant and animal specimens usually stained with dyes before observing them through a microscope? Name one stain used for this purpose.

Stains (dyes) are used to colour parts of the cell to study the detailed structure. Methylene blue solution stain is used in the study of structure of cell.

15. How do you observe a cell without any magnifying device?

1. Take hen's egg and boil it and remove the shell.
2. Thin layer present under the shell is plasma membrane.
3. The white material is albumin and the yellow part is yolk.
4. This way we can observe the single cell.

16. Indicate whether the following statements are True (T) or False (F).

- (a) Unicellular organisms have a one-celled body. (T)
- (b) Muscle cells are branched. (T)
- (c) The basic living unit of an organism is an organ. (F)
- (d) Amoeba has an irregular shape. (T)

Fill in the blanks

1. _____ discovered cell for the first time. (Robert Hooke)
2. Bark is a _____ tissue. (non living)
3. Cells are the _____ unit of all living organisms. (basic)
4. _____ cells are branched. (Muscle)
5. Amoeba has _____ shape. (irregular)
6. The _____ cell transfers the messages. (nerve)
7. _____ is a group of tissues. (Organ)
8. Protoplasm is _____ inside the cell. (viscous fluid)
9. Eukaryotes cells have a well-developed _____. (nucleus)
10. The jelly-like substance found between the nucleus and the cell-membrane is _____. (cytoplasm)
11. Nucleus is separated from the cytoplasm by _____. (nuclear membrane)
12. An _____ is a group of organs. (organ system)
13. _____ are present in plant cells but in animal cells _____. (Plastids, absent)
14. _____ is the process of making food in plants. (Photosynthesis)
15. _____ is absent in animal cell. (Cell wall)
16. _____ is the power house of the cell. (Mitochondria)

1. What are the major groups of microorganisms?

Microorganisms are classified into four major groups are bacteria, fungi, protozoa and some algae.

2. Can microorganisms be seen with the naked eye? If not, how can they be seen?

No, microorganisms cannot be seen by naked eye as they are very small and are called microbes. They can be seen with the help of microscope.

3. Name the microorganisms which can fix atmospheric nitrogen in the soil?

Bacteria such as Rhizobium, Azatobactor, Clostridium and certain blue-green algae present in the soil can fix atmospheric nitrogen and convert into usable nitrogenous compounds,

4. Write 10 lines on the usefulness of microorganisms in our lives?

1. Micro organisms are helpful for preparation of Idli and Dosa.
2. Yeast is widely used in the preparation of wine.
3. Lactobacillus converts milk into curd.
4. Microbes are used to reduce pollution.
5. Decomposing bacteria are useful in cleaning up of the environment.
6. They are used to increase the soil fertility.
7. Microbes are also useful in preparing many medicines.
8. Some microbes are also used in the biological treatment of sewage and industrial effluents.
9. Microbes are useful in preparing antibiotics.
10. Microbes are used in preparation of bread and cakes.

5. Write a short paragraph on the harms caused by microorganisms?

Microorganisms are harmful in many ways. Some of the microorganisms cause diseases in human beings, plants and animals. Such disease-causing microorganisms are called pathogens. Some microorganisms spoil food, clothing and leather. Some of the common diseases affecting humans are cholera, common cold, chicken pox and tuberculosis. Disease causing microorganisms in plants like wheat, rice, potato, sugarcane, orange, apple and others reduce the yield of crops.

6. What are antibiotics? What precautions must be taken while taking antibiotics?

1. The medicines that kill or stop the growth of the disease causing microorganisms are called antibiotics.
For example: Streptomycin, tetracycline, etc.
2. Following precautions must be taken while taking antibiotics:
3. Antibiotics should be taken only on the advice of a doctor.
4. One must finish the course prescribed by the doctor.
5. Antibiotics must be avoided when not needed or in wrong doses.

7. What will happen if Nitrogen fixers are absent in the soil?

1. Plants cannot absorb atmospheric nitrogen though it is present in sufficient amounts in the air.
2. If Nitrogen fixers are absent in soil, it cannot be added with Nitrogen compounds naturally.

8. If there are no microorganisms on the earth what will happen?

1. If microorganisms are not present on earth, the earth will be full of dead organisms and plants.
2. Plants cannot get the atmospheric Nitrogen.

9. Why are children given vaccination?

1. Vaccines prevent infection by providing resistance over diseases.
2. By giving vaccines we can protect them from several diseases.

10. Write differences between Vaccines and Antibiotics?

1. Antibiotics are prescribed after infection while vaccines are injected prior to the infection.
2. Antibiotics act on disease causing organisms and kill them or reduce the effect of disease causing organisms.
3. Vaccines prevent infection by providing resistance over diseases.
4. Protection provided by Antibiotics are limited to time of end of disease while protection provided by vaccines is extended for long time and even for life time.

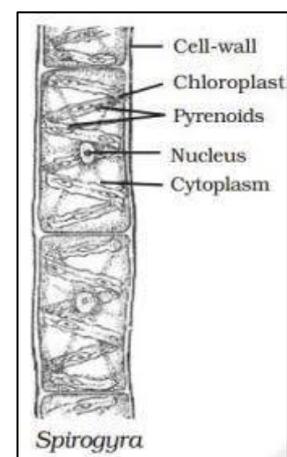
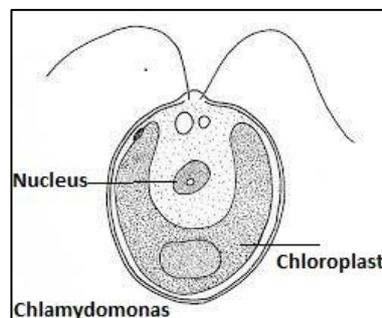
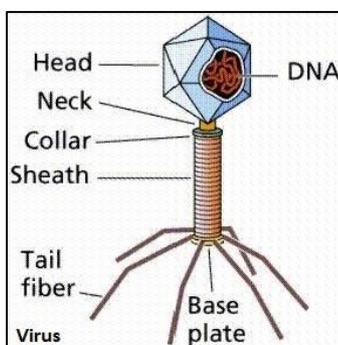
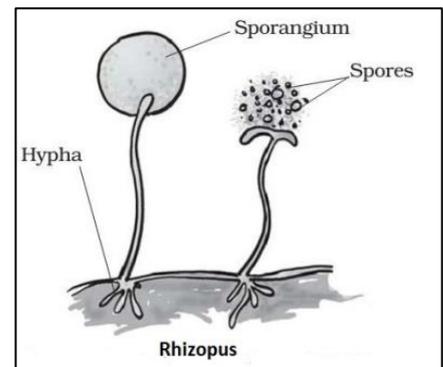
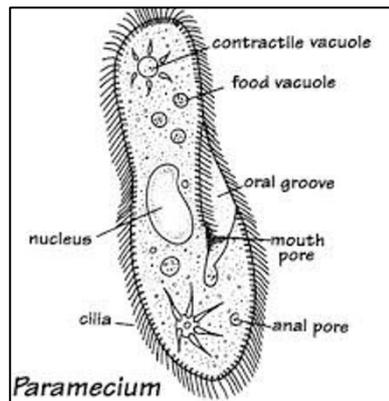
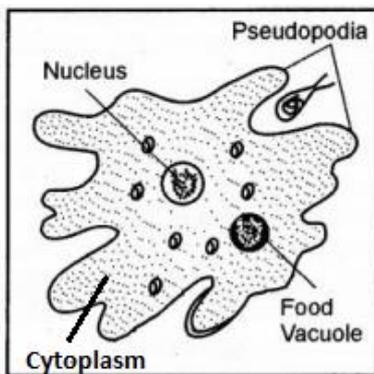
11. What is Pasteurization?

1. Milk is heated to about 70°C for 15 to 30 seconds and then suddenly chilled is called Pasteurisation.
2. Boiling and followed by cooling of milk controls growth of microbes and preserves it for long time.

12. What are communicable diseases? Give examples?

1. Microbial diseases that can spread from an infected person to a healthy person through air, water, food or Physical contact are called communicable diseases.
2. Examples of communicable diseases are cholera, common cold, chickenpox and tuberculosis.

13. Draw different types of microorganisms?



14. Write some common diseases caused by micro organisms?

Disease	Microorganism	Mode of transmission
Tuberculosis	Bacteria	Air
Cholera	Bacteria	Water/ Food
Typhoid	Bacteria	Water
Measles/ Chicken Pox	Virus	Air/ contact
Polio	Virus	Air
Malaria	Protozoa	Mosquito
Citrus canker of lemon (Plant)	Virus	Air
Rust of Wheat (Plant)	Fungus	Air

15. Make a list of scientists and their discoveries related microorganisms?

Name of the scientist	Discovery
Louis Pasteur	Pasteurization, Vaccine for Rabies
Edward Jenner	Small Pox vaccine
Alexander Fleming	Penicillin
Robert Koch	Bacteria which cause Cholera and Tuberculosis
Yellapragada Subba Rao	Erythromycin

Fill in the blanks

1. Micro organisms can be seen with the help of a --- (Microscope)
2. Blue green algae fix ----- directly from air and enhance fertility of soil. (Nitrogen)
3. Alcohol is produced with the help of --- (Yeast)
4. Cholera is caused by ---- (Bacteria)
5. Carrier of malaria causing protozoa is ----- (Female Anopheles mosquito)
6. The most common carrier of communicable diseases is --- (Housefly)
7. The rise of bread or idli is because of --- (Growth of Yeast cells)
8. The process of conversion of sugar into alcohol is called --- (Fermentation)
9. Milk is preserved by a method – (Pasteurization)
10. Rhizobium bacteria lives in – (Root nodules of Leguminous Plants)

Match the following

- | | | |
|------------------|-----|-------------------------|
| 1. Bacteria | () | A. Fixing Nitrogen |
| 2. Rhizobium | () | B. Setting of curd |
| 3. Lactobacillus | () | C. Baking of bread |
| 4. Yeast | () | D. Causing Malaria |
| 5. A Protozoan | () | E. Causing Cholera |
| 6. A Virus | () | F. Causing AIDS |
| . | | G. Producing antibodies |

Answers: 1-E, 2-A, 3-B, 4-C, 5-D, 6.F

1. Give two examples of each. A) Kharif crop B) Rabi crop

Kharif crop: Paddy, Maize, Groundnut

Rabi crop: Wheat, Pea, Gram

2. Write a paragraph in your own words on each of the following.

A) Preparation of soil B) Sowing C) Weeding D) Threshing

A) Preparation of soil: Soil preparation is necessary before growing a crop. It involves tilling and loosening the soil. This allows the roots to penetrate deep in the soil and to breathe easily even when they are deep.

B) Sowing: It is the process of putting seeds in the soil. For this purpose, good quality seeds should be selected. Seeds are sown with the help of a traditional funnel-shaped tool or a seed drill. An appropriate distance between the seeds is also important to avoid overcrowding.

C) Weeding: Some undesirable plants grow along with crop and these unwanted plants are called weeds. The process of removing these unwanted plants is called weeding. Weeding is necessary because weeds compete with the cultivated plants for space, light, water, and nutrients.

D) Threshing: The process of separating the grain seeds from the chaff is called threshing. This is carried out with the help of a thresher or a machine called 'combine'

3. If wheat is sown in the kharif season, what would happen? Discuss.

1. Wheat crop is grown in Rabi season.
2. It is short night plant.
3. It is grown in winter and requires Short nights and less water.
4. If wheat is sown in Kharif season, its production will be decreased.

4. Explain how fertilisers are different from manure

Fertiliser	Manure
1. A fertiliser is an inorganic salt.	1. Manure is a natural substance obtained by decomposition of cattle dung, human waste and plant residues.
2. A fertiliser is prepared in factories.	2. Manure can be prepared in the fields.
3. A fertiliser does not provide any humus to the soil.	3. Manure provides a lot of humus to the soil.
4. Fertilisers are very rich in plant nutrients like nitrogen, phosphorus and potassium.	4. Manure is relatively less rich in plant nutrients.

5. What is irrigation? Describe two methods of irrigation which conserve water?

A) The method of watering the plants for their growth is called irrigation. Main sources of irrigation are wells, tube-wells, ponds, lakes, rivers.

Two methods which help us to conserve water are:

Sprinkler irrigation system: This irrigation system has an arrangement of vertical pipes with rotating nozzles on the top. It is more useful in the uneven and sandy land where sufficient water is not available.

Drip irrigation system: This irrigation system has an arrangement of pipes or tubes with very small holes in them to water plants drop by drop at the base of the root. It is very efficient as water is not wasted at all.

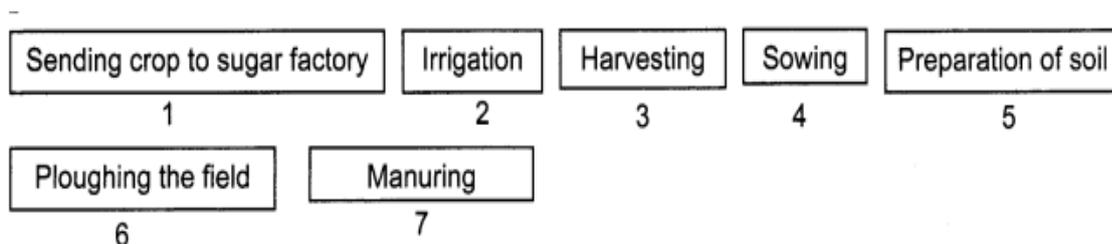
6. Explain how soil gets affected by the continuous plantation of crops in a field?

1. Continuous plantation of crops makes the soil poorer in certain nutrients. The soil becomes infertile.
2. To avoid this, the following practices should be facilitated:
 1. Crop rotation
 2. Manuring the soil
 3. Leaving field fallow

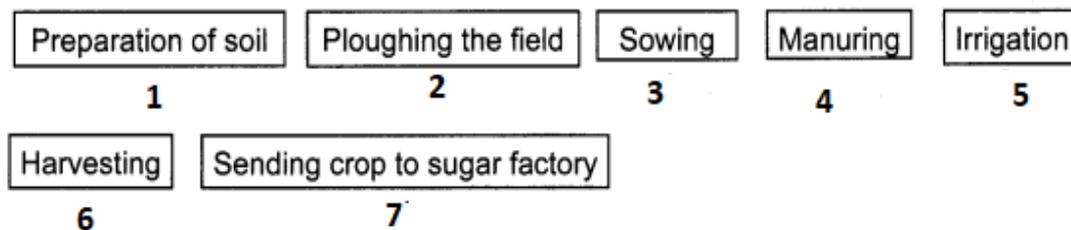
7. What are the weeds? How can we control them?

1. The undesirable and unwanted plants which grow naturally along with the crop are called weeds.
2. Tilling before sowing of crops helps in the uprooting and killing of weeds.
3. Farmers use Khurpl or seed drill to uproot weeds
4. Weedicides are sprayed in the fields to kill the weeds. e.g: 2, 4-D.

8. Arrange the following boxes in the proper order to make a flow chart of sugarcane crop production.



Answer:



9. Complete the following word puzzle with the help of clues given below.

Down:

1. Providing water to the crops.
2. Keeping crop grains for a long time under proper conditions.
5. Certain plants of the same kind grown on a large scale.

Across:

3. A machine used for cutting the matured crop.
4. A Rabi crop that is also one of the pulses.
6. A process of separating the grain from the chaff.



10. How is soil a resource for all living organisms?

1. It is habitat for many living organisms.
2. Plants grow in soil which provides food, shelter, material for clothes.
3. Plants grow in soil and provide O₂.
4. Decomposition occurs in soil.

11. What are the advantages of organic manure?

1. It enhances the water holding capacity of the soil.
2. It makes the soil porous due to which exchange of gases takes place.
3. The number of friendly microbes is increased.
4. The organic manure improves the texture of the soil.

12. How can we separate good, healthy seeds from the damaged ones?

Answer: Take a beaker and fill half of it with water. Put a handful of wheat seeds and stir well. Wait for some time. Seeds that float on water are the damaged ones. Damaged seeds become hollow and are thus lighter. Therefore, they float on water.

13. What is biological control of pest? How is it beneficial?

Answer: Method of controlling pests with the help of other living organisms is known as biological control of pest. For example, lady bugs control aphids, mites, scale insects, etc., which harm the crops.

A wasp eats up bollworms or other caterpillars on cotton plant.

Benefits of bio control agents are:

Less costly, Eco-friendly, Harmless to human beings and beneficial to the soil.

14. What precautions should be taken while spraying weedicides and why?

Spraying of weedicides may affect the health of farmers. So they should use these chemicals very carefully. They should cover their nose and mouth with a piece of cloth during spraying of these chemicals.

15. Why earthworms and microbes are called friends of farmer?

The loosened soil helps in the growth of earthworms and microbes present in the soil. These organisms are friends of the farmer since they further turn and loosen the soil and add humus to it.

Fill in the blanks

1. Select the correct word from the following list and fill in the blanks.

(Float, Water, Crop, Nutrients, Preparation)

- a) The same kind of plants grown and cultivated on a large scale at a place is called—(Crop)
 - b) The first step before growing crop is ----- of the soil. (Preparation)
 - c) Damaged seeds would ----- on top of water. (Float)
 - d) For growing a crop sufficient and ----- and ----- from the soil are essential. (Water , Nutrients)
2. The best method of sowing seed is ----- (Seed drilling and sowing)
 3. Leguminous plants increase ----- levels in the soil. (Nitrogen)
 4. 2-4-D is an example for ----- (Weedicide)
 5. The cutting of crop after it's mature is called ----- (Harvesting)
 6. Large scale rearing of animals in farms is called ----- (Animal husbandry)

Match the following

- | | | |
|-------------------------|---------|--|
| 1. Kharif crops | () | A) Food for cattle |
| 2. Rabi crops | () | B) Urea and super phosphate |
| 3. Chemical fertilisers | () | C) Animal excreta, cow dung, urine and plant waste |
| 4. Organic manure | () | D) Wheat, gram, pea |
| | | E) Paddy and maize |

Answers: 1-E, 2-D, 3-B, 4-C

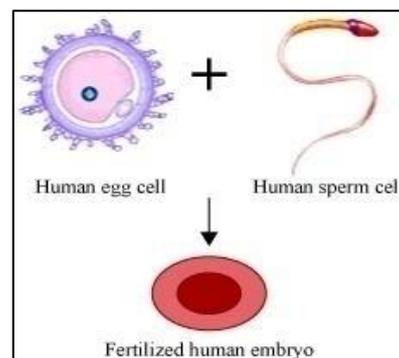
4. REPRODUCTION IN ANIMALS

1. Explain the importance of reproduction in organisms?

The production of new individuals from their parents is known as reproduction. Reproduction is very important as it ensures the continuation of a species. If the process of reproduction does not exist, the species would get vanished from the earth.

2. Describe the process of fertilisation in human beings?

1. There is sexual reproduction in human beings.
2. Millions of sperms from the male are transferred into the female body.
3. One of the sperms may fuse with the egg. Such fusion of the egg and the sperm is called fertilization.
4. This results in the formation of a fertilized egg or zygote.
5. The single celled zygote begins to develop into an embryo.



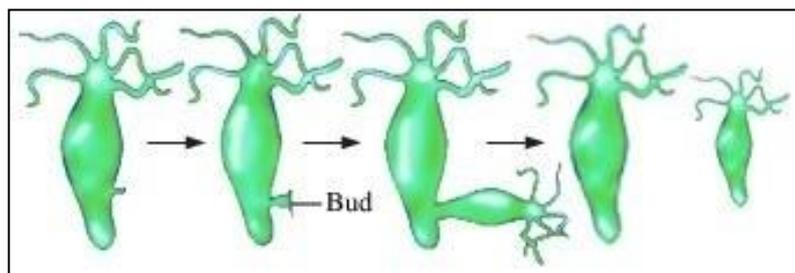
3. Give two differences between a zygote and a foetus?

Zygote	Foetus
1. It is single-celled.	1. It is multicellular.
2. Zygote is formed by the fusion of male and female gametes.	2. Foetus is formed by the repeated division of zygote and differentiation.

4. Define asexual reproduction. Describe two methods of asexual reproduction in animals?

1. The type of reproduction in which only a single parent is involved is called asexual reproduction.
2. Binary fission, Budding, Fragmentation etc. are the examples of asexual reproduction.

Budding: In this mode, a part of the organism starts bulging out. Slowly it grows and develops into a separate individual. Examples: Hydra, yeast.



Binary Fission: It is a type of asexual reproduction in which a single cell divides into two halves. Examples: Bacteria and Amoeba.



5. In which female reproductive organ does the embryo get embedded?

The embryo gets embedded in the wall of the uterus for further development.

6. What is metamorphosis? Give examples?

1. The change that transforms a larva into an adult is called metamorphosis.
2. Frog, Silk Worm, Butterfly are some animals in which metamorphosis occurs.

11. What is the basic difference between asexual and sexual reproduction?

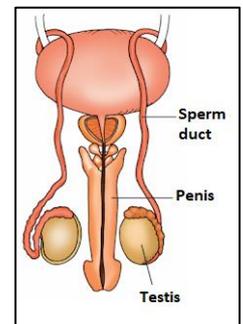
Asexual reproduction	Sexual reproduction
1. The type of reproduction in which only a single parent is involved is called asexual reproduction.	1. Reproduction resulting from the fusion of male and female gametes is called sexual reproduction.
2. No formation or fusion of gametes occurs.	2. Gametes are formed, and fusion also occurs.
3. No fertilization takes place.	3. Fertilization takes place.

12. Why do fish and frogs lay eggs in hundreds?

1. All the eggs do not get fertilized and develop into new individuals.
2. This is because the eggs and sperms get exposed to water movement, wind and rainfall.
3. Also, there are other animals in the pond which may feed on eggs.
4. So these animals lay hundreds of eggs and release millions of sperms to ensure fertilization.

13. Describe the male reproductive organs with the help of a labelled diagram?

1. The male reproductive organs mainly consist of a pair of testes, two sperm ducts and a penis.
2. Male gametes called sperms are produced by the testes.
3. Millions of sperms are produced by testis.

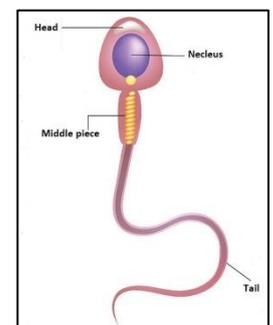


14. Explain the importance of reproduction in organisms?

1. Reproduction is essential for the continuation of a species.
2. It ensures the continuation of similar kinds of individuals, generation after generation.

15. Write a short note on human sperm?

1. The male gamete is called sperm. It is produced by male reproductive organ, testes
2. Sperms are very small in size, each has a head, a middle piece and a tail.
3. The tail helps the sperm to move around.
4. The head bears the small nucleus.

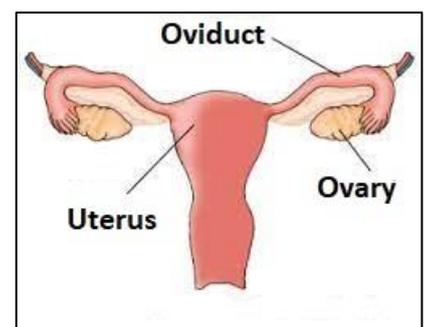


16. What is cloning?

1. Cloning is the production of an exact copy of a cell, any other living part, or a complete organism.
2. The first cloned animal is Dolly (Sheep) and it was done by Ian Wilmut.

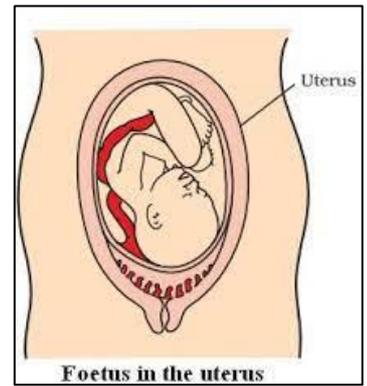
17. Describe female reproductive organs with the help of a labelled diagram.

1. The female reproductive organs mainly consist of a pair of ovaries, oviducts or fallopian tubes and the uterus.
2. The female gametes called ova or eggs are produced by ovary.
3. In human beings, a single matured egg is released into the oviduct by one of the ovaries every month.
4. Uterus is the part inside which the embryo grows and develops finally into a baby.



18. Explain the development of an embryo with a diagram.

1. Fertilisation results in the formation of zygote which develops into an embryo.
2. The zygote divides repeatedly to give rise to a ball of cells. Which further begin to form groups that develop into different tissues and organs of the body. This developing structure is called an embryo.
3. The embryo gets embedded in the wall of the uterus for further development .
4. The embryo continues to develop in the uterus. It gradually develops different body parts. This developing stage of embryo is called foetus .



19. Indicate whether the following statements are True (T) or False (F):

1. Oviparous animals give birth to young ones. (F)
2. Each sperm is a single cell. (T)
3. External fertilisation takes place in frogs. (T)
4. A new human individual develops from a cell called gamete. (F)
5. Egg laid after fertilisation is made up of a single cell. (T)
6. Amoeba reproduces by budding. (F)
7. Fertilization is necessary even in asexual reproduction. (F)
8. Binary fission is a method of asexual reproduction. (T)
9. A zygote is formed as a result of fertilisation. (T)
10. An embryo is made up of a single cell. (F)

Fill in the Blanks

1. A tadpole develop into an adult frog by the process of _____. (Metamorphosis)
2. The number of nuclei present in a zygote is _____. (One)
3. The scientist who performed cloning for the first time is _____. (Ian Wilmut)
4. The respiratory organ in tadpole larva is _____. (Gills)
5. _____ is the process that ensures continuity of life on earth. (Reproduction)
6. _____ are the cells involved in sexual reproduction. (Gametes)
7. The animals which lay eggs are called _____. (Oviparous)
8. The animals which give birth to young ones are called _____. (Viviparous)
9. _____ is the process of fusion of gametes. (Fertilisation)
10. The testes produce the male gametes called _____. (Sperms)
11. Sperm is a _____ cell. (Single)
12. The ovary produces female gamete called _____. (Ova/Egg)
13. An ova or egg is a _____ cell. (Single)
14. Internal fertilisation takes place inside _____. (Female body)
15. Babies born through _____ technique are called test tube babies. (IVF)
16. _____ fertilisation takes place outside the female body. (External)

1. List changes in the body that take place at puberty.

1. Increase in height.
2. Change in body shape – Boys has broader shoulders and wider chests. In girls, the region below the waist becomes wider.
3. Change in voice - Girls have a high-pitched voice, whereas boys have a deep voice.
4. Development of sex organs - Male sex organs start produces sperms. In girls, the ovaries start releasing matured eggs.
5. The secretion of sweat glands and sebaceous glands (oil glands) increases.
6. A person reaches mental, intellectual, and emotional maturity.

2. What is menstruation? Explain.

1. The uterine wall in females prepares itself to receive the developing fertilized
2. In case there is no fertilisation, the thickened lining of the uterine wall breaks down and goes out of the body along with blood. This is called menstruation.
3. Menstruation occurs once in about 28 to 30 days.
4. The first menstrual flow begins at puberty and is termed as Menarche.
5. The menstrual cycle stops at the age of 45 to 50 years. This is termed as Menopause.

3. Explain the importance of cleanliness during the time of menstrual cycle in girls?

1. Girls should take special care of cleanliness during the time of menstrual cycle.
2. Making use of disposable napkins may reduce chances of infections.
3. It should be changed frequently depending upon the menstrual flow.

4. What are sex hormones? Why are they named so? State their function?

1. Hormones secreted by testes and ovaries are termed as sex-hormones.
2. They are named so because they are secreted by the reproductive organs.
3. These hormones are responsible for the secondary sexual characters of males and females.
4. They also stimulate spermatogenesis in male and Ovulation in female.

5. Prepare a table having two columns depicting names of endocrine glands and hormones secreted by them.

S.No	Name of the Endocrine gland	Hormones secreted
1	Pituitary	Growth Hormone
2	Thyroid	Thyroxin
3	Adrenal glands	Adrenaline
4	Pancreas	Insulin
5	Testes	Testosterone
6	Ovaries	Estrogen, Progesterone

6. What is meant by adolescence?

Growing up is a natural process. The period of life, when the body undergoes several changes leading to reproductive maturity, is called adolescence. The adolescence period is 11 to 19 years of age.

7. Why are endocrine glands also called ductless glands?

Endocrine glands release hormones directly into the blood stream. So, they are termed as ductless glands. For example, pituitary, thyroid, pancreas, etc.

8. Write notes on:

- Adam's apple.
- Secondary sexual characters.
- Sex determination in the unborn baby.

a) Adam's apple : At puberty, the voice box or the larynx begins to grow. The growing voice box in boys can be seen as a protruding part of the throat called Adam's apple. This makes a boy's voice hoarse.

b) Secondary Sexual Characters: The characters or features which help to distinguish the male from the female are called secondary sexual characters.

Eg : Change in pitch of voice, characteristic hair growth etc.

c) Sex determination in the unborn baby: Human beings have 23 pairs of chromosome. One pair of male (XY) and one pair of chromosome in female (XX) are called sex chromosome. Male produce two types of gametes half containing X chromosome and half containing Y chromosome. When the sperm containing Y chromosome fuse with egg the sex of baby is male and when X chromosome containing sperm fertilise the egg the sex of baby is female.

9. Why is good hygiene important during adolescence?

- Because the increased activity of sweat glands sometimes makes the body smelly in teenagers.
- All parts of the body should be washed and cleaned every day.
- If cleanliness is not maintained there are chances of catching bacterial infection.

10. Why early marriage and motherhood is harmful to the girls?

- Early marriage and motherhood cause health problems in the mother and the child.
- It also curtails employment opportunities for the young woman and may cause mental agony as she is not ready for responsibilities of motherhood.

11. What are the various ways in which AIDS virus HIV can be transmitted?

AIDS which is caused by a dangerous virus, HIV. This virus can pass on to a normal person from an infected person by sharing the syringes used for injecting drugs. It can also be transmitted to an infant from the infected mother through her milk. The virus can also be transmitted through sexual contact with a person infected with HIV.

12. If people do not have enough Iodine In their diet, will they get Goitre caused by lack of thyroxine?

- Yes, Iodine is necessary for proper functioning of Thyroid gland.
- It helps in the production of thyroxine.
- If people do not have enough Iodine In their diet, will they get Goitre disease.

13. Write some slogans to create awareness among people about to stop child marriages?

- Stop killing the childhood by child marriage.
- Stop child marriage stop child abuse.
- Let a child be a child, stop child marriage.
- Show a child love and care, child Marriage is just not fair.

14. Why do young people get acne?

During puberty the secretion of sweat glands and sebaceous glands (oil glands) increases. Many young people get acne and pimples on the face at this time because of the increased activity of these glands in the skin.

15. Why drugs should be avoided?

Drugs should be avoided because they are addictive. If we take them once, we feel like taking them again and again. They harm the body in the long run. They ruin health and happiness.

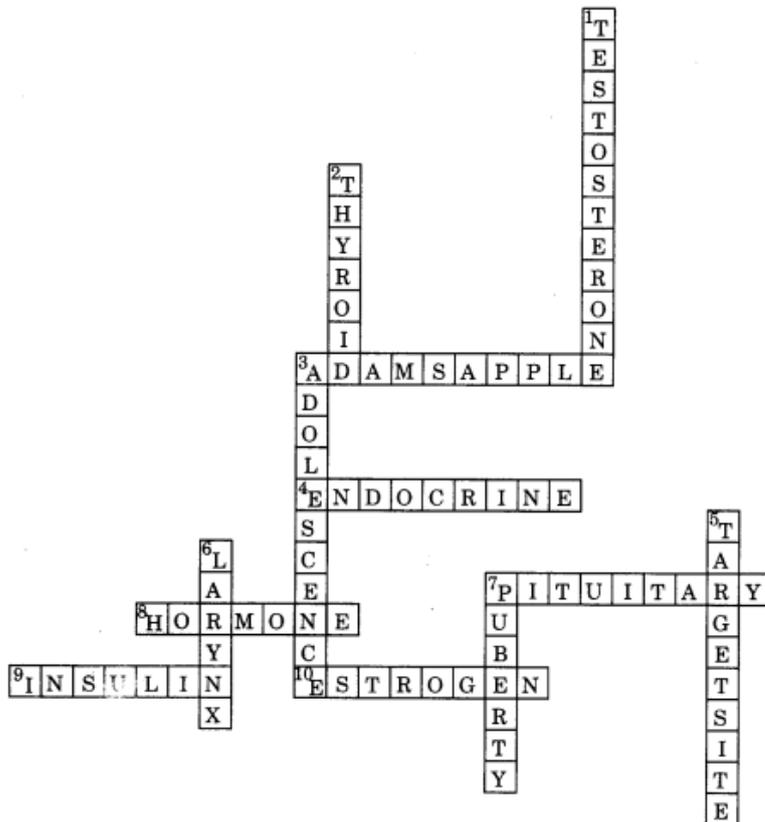
16. Word game: Use the clues to work out the words.

Across

3. Protruding voice box in boys
4. Glands without ducts
7. Endocrine gland attached to brain
8. Secretion of endocrine glands
9. Pancreatic hormone
10. Female hormone

Down

1. Male hormone
2. Secretes thyroxine
3. Another term for teenage
5. Hormone reaches here through the bloodstream
6. Voicebox
7. Term for changes at adolescence.



Fill in the Blanks

1. Oil glands are called glands. (Sebaceous)
2. The hormone is involved in the contraction of uterine muscles during child birth. (Oxytocin)
3. The release of ovum from the ovary is called (Ovulation)
4. Fertilization takes place in the(Fallopian tube)
5. is a temporary endocrine gland formed during pregnancy. (Corpus luteum)
6. Stoppage of menstruation is called (Menopause)
7. In frogs metamorphosis is influenced by ----- (Thyroid)
8. "Master of endocrine glands" is ----- (Pituitary)

1. Discuss the effects of deforestation on the following.

- (a) Wild animals (b) Environment (c) Villages (rural areas) (d) Cities (e) Earth (f) The next generation
- (a) Wild animals:** They won't get their natural habitat and surroundings as well as food. They will migrate to another forest.
- (b) Environment:** Climate changes disturb the environment. Global warming is caused due to accumulation of carbon dioxide.
- (c) Villages:** Villagers cannot grow food because of no rain. So, drought situations will prevail. Villager will move to towns and cities.
- (d) Cities:** Cities flooded with drought-affected villagers, will affect the environment. Food-grains will either not available or if available, they will costlier.
- (e) Earth:** Physical properties of the soil will get affected badly. The lands will be gradually converted into desert.
- (f) The next generation:** The next generation will face problems at every step. There will be scarcity of food and clean environment. Next generation won't be able to see most of the animal species due to habitat loss

2. What will happen if.

- (a) We go on cutting trees.**
- (b) The habitat of an animal is disturbed**
- (c) The top layer of soil is exposed**
- (a) If we go on cutting trees:** The temperature will increase and the water cycle will be disturbed.
- (b) If the habitat of an animal is disturbed:** The animal may not be in position of getting its natural habitat as well as food.
- (c) If the top layer of soil is exposed:** The exposed top layer loses all its nutrients, especially the humus. The water holding capacity of soil will decrease.

3. Differentiate between the following.**1. Wildlife sanctuary and biosphere reserve**

Wildlife sanctuary	Biosphere reserve
1. The area that is reserved in a forest for the protection and preservation of wild animals.	1. Biosphere reserves are the areas meant for the conservation of biodiversity.
2. It also provides suitable living conditions.	2. It may also contain other protected areas

2. Zoo and wildlife sanctuary

Zoo	Wild sanctuary
1. Zoos are places where animals are protected in an artificial habitat.	1. Wildlife sanctuary are places where wild animals are protected in their natural habitat.
2. Animals in zoos are fed by human beings.	2. Animals find their food themselves from the forests in which they live.

3. Endangered and Extinct species

Endangered species	Extinct species
1. These are those species which are facing the danger of extinction	1. They are the species which have already vanished from the earth.
2. Eg: Great Indian Bustard bird, tiger	2. Eg: Dinosaurs

Flora	Fauna
1. The plants that are found in a particular area are called flora.	1. The animals that are found in a particular area are called fauna.
2. Eg: Sal, teak, Neem etc.	2. Eg: Tiger, Deer, Birds etc.

5. Why should we conserve biodiversity?

1. If the biodiversity is not conserved, the life existing on earth, their interrelationships and their relationship with environment will be disturbed.
2. So we should conserve as the food chain should not get disturbed, otherwise the whole ecosystem will be affected.

6. Protected forests are also not completely safe for wild animals. Why?

Protected forests are also not completely safe for wild animals because people living around kill the animals for leather etc. The cutting of trees also effects wild animals.

7. Some tribal depends on jungle. How?

Some tribal live in the jungle. Jungle provides them food and protection. That is why; they are fully dependent upon the forests.

8. What are the causes and consequences of deforestation?

Causes of deforestation:

- (i) Procuring land for cultivation.
- (ii) Building houses and factories.
- (iii) Natural Calamities like flood, drought and forest fire.

Consequence of deforestation:

- (i) Global warming.
- (ii) Soil erosion
- (iii) Melting of ice on poles.
- (iv) Chances of natural calamities such as floods and drought.

9. What is Red Data Book?

Red Data Book is the sourcebook which keeps a record of all endangered animals and plants.

10. What do you understand by the term migration?

Migration means the movement of a species from its own habitat to some other place during a certain period in a year for breeding or to overcome some climatic conditions.

11. In order to meet the ever-increasing demand in factories and for shelter, trees are being continually cut. Is it justified to cut trees for such projects? Discuss and prepare a brief report.

1. It is not justified to cut trees for projects instead we should use those sources which are renewable.
2. Trees are known as 'the lung of the earth'. They are the habitat of many living organisms, including animals.
3. If we cut one tree, atleast five trees should be grown so that reforestation will remain continuous.
4. But, if trees are cut blindly and no trees are planted then the earth will face global warming, no rainfall climate change, soil erosion and deforestation.

12. How can you contribute to the maintenance of green wealth of your locality? Make a list of actions to be taken by you.

Ans: For the contribution to maintain of green wealth in my locality, the different actions to be taken are:

1. Planting saplings and trees.
2. Watering the plants regularly and taking proper care of them.
3. Not to allow anybody to cut any trees.
4. A club should be formed, which should take care of plants.

13. How does deforestation lead to reduced rainfall? Discuss in your class and find out the causes?

1. Deforestation causes soil erosion. Due to this soil becomes barren and incapable of retaining water. This reduces rainfall.
2. Deforestation leads to the accumulation of CO₂ in the atmosphere which results in global warming as CO₂ traps the heat of the sunrays.
3. The increase in temperature on earth will disturb the water cycle and reduce rainfall, causing drought in the region.

14. Find out about national parks in your state.

Protected areas	National parks	Wildlife sanctuary	Biosphere reserve
In my district		Telineelapuram bird sanctuary Telukunchi bird sanctuary	
In my state	Sri Venkateswara National park Papikondalu national park Rajiv Gandhi National park	Coringa Wildlife Sanctuary, Kambala konda wild life sanctuary Kolleru Wildlife Sanctuary Papikondalu Wildlife Sanctuary Krishna Wildlife Sanctuary	Seshachalam Biosphere reserve
In my country	Bandipur National park Jim Corbett National park Kaziranga National park Gir National park	Bhartpur wildlife sanctuary Chilka wildlife sanctuary Chinnar wildlife sanctuary Madhumalai wildlife sanctuary	Sundarbans Biosphere reserve Nandadevi Biosphere reserve Neelgiri Biosphere reserve Panna Biosphere reserve

15. Why should paper be saved? Prepare a list of ways by which you can save paper.

1. A large number of trees can be saved by saving paper
2. To make one tone of paper 17 full grown trees are to be cut.
3. Instead of letters, we should use e-mails.
4. We should use recycled paper.

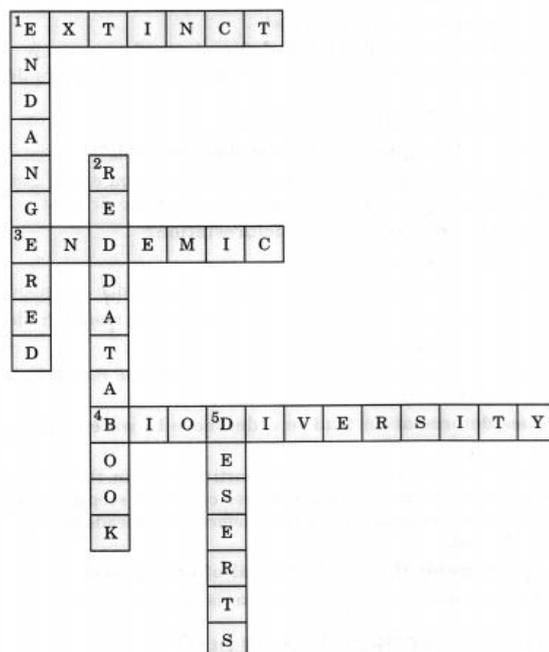
16. Complete the word puzzle:

Down

1. Species on the verge of extinction.
2. A book carrying information about endangered species.
5. Consequence of deforestation.

Across

1. Species which have vanished.
3. Species found only in a particular habitat.
4. Variety of plants, animals, and microorganisms found in an area.



17. What is ecosystem?

An ecosystem is made of all the plants, animals and microorganisms in an area along with non-living components such as climate, soil, river deltas, etc.

18. What is global warming?

The gradual increase in the overall temperature of earth’s atmosphere due to greenhouse effect caused by the increased level of carbon dioxide in the atmosphere is called global warming.

19. What is Biodiversity?

The variety of organisms living on the earth, is referred to as Biodiversity, their interrelationships and their relationship with the environment.

Fill in the blanks:

1. A place where animals are protected in their natural habitat is called _____ (Wildlife sanctuary)
2. Species found only in a particular area is known as _____ (Endemic species)
3. Migratory birds fly to faraway places because of _____ changes. (Climatic)
4. The variety of organisms living on the earth, is referred to as _____ (Biodiversity)
5. _____ is a group of population which are capable of interbreeding. (Species)
6. _____ is the first Reserve Forest of India. (Satpura National park)
7. The restocking of destroyed forests by planting new trees is known as _____. (Reforestation)
8. Project Tiger was launched in the year _____ (1973)
9. Rock shelters are the evidences of _____ (Pre historic human life)

1. What are the different ways in which water gets contaminated?

1. Industries release harmful chemical wastes into water sources, thereby polluting them.
2. Waste materials from kitchens, toilets, and laundry sources are also responsible for contaminating water.
3. Excessive amounts of pesticides and fertilizers used by farmers get carried away to the water bodies due to rains and floods which lead to water pollution.

2. At an individual level, how can you help reduce air pollution?

1. Use CNG and unleaded petrol instead of ordinary petrol and diesel.
2. Use public transport as far as possible.
3. Generate awareness among people to reduce air pollution.
4. will plant more trees because to keep the environment clean and reduce air pollution.

3. Clear, transparent water is always fit for drinking. Comment.

1. No. Clear and transparent water is not always fit for drinking.
2. Water might appear clean, but it may contain some disease causing micro-organisms and other dissolved impurities.
3. It is advised to purify water before drinking.

4. You are a member of the municipal body of your town. Make a list of measures that would help your town to ensure the supply of clean water to all its residents.

1. Proper cleaning of the water tank from time to time.
2. Chlorination should be made regularly
3. The water supply pipes should not come in contact with the sewage pipes.
4. The main water source must be built in clean surroundings and should be maintained properly.

5. Explain the differences between pure air and polluted air.

1. Pure air contains 78% nitrogen, 21% oxygen and 0.03% CO₂. Other gases such as argon, methane, neon, water vapour, etc.
2. Pure air is free from any pollutant, has no smell, is soothing and not irritating to eyes.
3. When this composition of air is altered by the addition of harmful substances or gases such as Nitrogen dioxide, Sulphur dioxide, Carbon monoxide, and particulate matter, then the air is said to be polluted.
4. If people inhale such air, they may suffer from various breathing problems.

6. Explain circumstances leading to acid rain. How does acid rain affect us?

1. Pollutants like Sulphur dioxide and Nitrogen dioxide react with the water vapour present in the atmosphere to form Sulphuric acid and Nitric acid.
2. These acids come down with the rain, thereby resulting in acid rain.

Effects of acid rain:

1. It increases corrosion of metals.
2. It damages buildings and sculptural materials.
3. It causes direct damage to plants and crops.
4. It causes skin eruptions in human being.

7. Prepare a brief speech on global warming. You have to deliver the speech in your class.

1. Global warming is an increase in the average temperature of the Earth's surface.
2. It occurs as a result of an increased concentration of greenhouse gases in the atmosphere.
3. Global warming is a threat to life as it causes a lot of problems.
4. So, we must be aware of this problem and take every possible step to tackle it.

8. Describe the 'Greenhouse Effect' in your own words.

1. When solar radiations reach the Earth, some of these radiations are absorbed by earth and then released back to the atmosphere.
2. Greenhouse gases like carbon dioxide, methane present in the atmosphere trap these radiations and do not allow heat to leave.
3. This helps in keeping our planet warm. This effect is named as Greenhouse effect.
4. Increase in the amount of greenhouse gases can lead to excessive increase in the Earth's temperature leading to global warming.

9. Describe the threat to the beauty of the Taj Mahal.

1. The Taj Mahal is made of white marble, which is getting affected adversely due to the industrial pollutants from Agra, Mathura etc.
2. The sulphur dioxide gas along with nitrogen oxide gas released from these industries mix with rain water to form Sulphuric acid that fall on marble of this monument.
3. The acid rain corrodes the marbles and makes it yellowish.
4. This phenomenon is known as marble cancer.

10. Why does the increased level of nutrients in the water affect the survival of aquatic organisms?

1. An increase in the level of nutrients in a water body leads to an excessive increase in the population of algae. This is called eutrophication.
2. Once these algae die, they serve as food for decomposers like bacteria.
3. They use up a lot of oxygen. This results in a decrease in the oxygen level which is harmful to the survival of other organisms.

11. What is Ganga Action Plan? What is its aim?

The Ganga Action Plan is a plan which was launched to save the river Ganga in 1985. It aims to reduce pollution levels by treating domestic sewage, building electric crematoriums and reducing industrial waste. Apart from this water treatment plants are installed for physical, chemical and biological treatment of water.

12. What is the thick fog-like layer in the atmosphere during winter? How is it formed?

The thick fog like layer seen in the atmosphere especially in winter is smog. The smog is made up of smoke and fog. Oxides of nitrogen combine with other air pollutants and fog contributing to the formation of smog. It causes breathing difficulties such as asthma, cough and wheezing in children.

Fill in the Blanks

1. Water which is suitable for drinking is called _____ water. (Potable)
2. _____ are those kind of pollutants which are used in air conditioners and refrigerators. (CFC)
3. An odd combination of smoke and fog is called _____. (Smog)
4. The solid or liquid particles dispersed in air are called _____. (Aerosols)
5. Most of the atmospheric air is contained in the atmospheric layer called _____. (Troposphere)
6. _____ is produced from incomplete burning of fuel. (Carbon monoxide)
7. Increasing levels of _____ gases are leading to global warming. (Green house)
8. The most polluted city in India _____ (New Delhi)
9. The 3'Rs are _____ (Reduce, Reuse and Recycle)
10. Expand SPM _____ (Suspended Particulate Matter)