



## BIOLOGY

### BOOKS - X BOARDS

#### X BOARDS

#### Section A

1. Name the sensory receptors found in the nose and on the tongue.

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2. (a) Name the part of brain which controls  
(i) voluntary action, (ii) involuntary action.

(b) What is the significance of the peripheral nervous system?

Name the components of this nervous system and distinguish between the origin of the two.

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3. Write two examples each of sexually transmitted diseases caused by (i) virus, (ii) bacteria. Explain how the transmission of such diseases be prevented?

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4. "The sex of a newborn child is a matter of chance and none of the parents may be considered responsible for it." Justify this statement with the help of a flow chart showing determination of sex of a newborn.

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5. Draw the diagram of sectional view of human heart and on it name and label the following parts:

- (a) The chamber of the heart that pumps out deoxygenated blood.
- (b) The blood vessel that carries away oxygenated blood from the heart.
- (c ) The blood vessel that receives deoxygenated blood from the lower part of our body.

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6. Write two points of difference between asexual and sexual types of reproduction. Describe why variations are observed in the offspring formed by sexual reproduction.

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7. State the importance of chromosomal difference between sperms and eggs of humans.

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8. Name three different glands associated with the digestive system in humans. Also name their secretions.

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9. (a) Name the hormone which is secreted when growing plants detect light. Mention its site of secretion in a plant.

(b) Explain why do plants appear to bend towards light?

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**10.** Explain with the help of suitable examples why certain traits cannot be passed on to the next generation? What are such traits called?

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**11. (a)** Draw a diagram of human alimentary canal and label the following parts:

(i) largest gland.

(ii) gland that secretes digestive enzymes and hormone.

(iii) Part where HCl is produced.

(iv) part where digested food is absorbed.

(b) What are villi? Explain their function in the digestive system.

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12. What is pollination? How does it occur in plants? How does pollination lead to fertilization ? Explain.

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13. Why is Government of India imposing a ban on the use of polythene bags? Suggest two alternatives to these bags and explain how this ban is likely to improve the environment.

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14. Give reasons for the following:

(a) Arteries are thick walled.

(b) Blood goes only once through the heart in fishes.

(c) Plants have low energy needs.

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**15. (a)** Give the evidence that the birds have evolved from reptiles.

Insects, octopus, planaria and vertebrates possess eyes. Can we group these animals together on the basis of eyes that they possess? Justify your answer giving reason.



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**16.** Draw the human respiratory system and label the following parts:

(a) Trachea

(b) Alveoli

(c) Respiratory bronchioles

(d) Larynx.

Describe in brief the role of lungs in the exchange of gases.



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17. (a) Give one examples each of the unisexual and a bisexual flower.

(b) Mention the changes a flower undergoes after fertilization.

(c ) How does the amount of DNA remain constant though each new generation which is a combination of DNA copies of two individuals?

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18. Name the respective part of human female reproductive system:

(i) that produces eggs.

(ii) where fusion of egg and sperm take place, and

(iii) where zygote implanted.

(b) Describe in brief what happen to the zygote after it gets implanted.

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**19.** What is gene ?



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**20.** What is the main difference between sperms and eggs of humans ? Write the importance of this difference.



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**21.** Define the following :

(a) Reflex action (b) Synapse (c ) Phototropism.



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**22.** What do you mean by biomagnification of harmful chemicals ?

How does this phenomenon affect the human health ?



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23. (a) Compare the length of small intestine in herbivore and carnivore animal.

(b) Mention any two structural modifications in small intestine which helps in absorption .



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24. Name the two components of peripheral nervous system.



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25. What is the function of ozone which is present in the upper level of the atmosphere?



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**26.** What is sustainable management ? Why is reuse considered better in comparison to recycle ?

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**27.** State the kind of chemical reactions in the following examples :

(i) Digestion of food in stomach

(ii) Combustion of coal in air

(iii) Heating of limestone.

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**28.** What is solar cell panel ? Write some of its applications ?

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**29.** What is DNA copying ? State its importance.

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**30.** With the help of a labelled diagram, explain why the sun appears reddish at the sunrise and the sunset.

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**31. (a)** Write three main functions of the nervous system.

**(b)** In the absence of muscle cells, how do plant cells show movement ?

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**32.** How many pairs of chromosomes are present in human beings ?

Out of these how many are sex chromosomes ? How many types of sex chromosomes are found in human beings ? "The sex of a new born child is a matter of chance and none of the parents may be newborn to justify this statement.

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**33.** Mention the purpose of blacking the interior of a solar cooker.

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**34.** Name the gland and the hormone secreted by the gland, which are associated with the following problems:

(i) a girl has grown extremely tall.

(ii) a women has a swollen neck.



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**35.** Explain how water and minerals are transported in plants?



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**36.** Explain how the movement of leaves of a sensitive plant is different from movement of shoots towards light ?



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**37.** Write any three characteristics of a good fuel.



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**38.** List six specific characteristics of sexual reproduction.

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**39.** List four points of significance of reproductive health in a society. Name any two areas related to reproductive health which have improved over the past 50 years in our country.

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**40.** Define photosynthesis.

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**41.** List two natural ecosystems.

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**42.** Name the plant hormones responsible for the following functions:

- (i) Growth of the stem
- (ii) Promotes cell division
- (iii) Wilting of leaves
- (iv) Inhibits growth

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**43.** Differentiate between the following with suitable examples :

- (i) mineral and ore
- (ii) corrosion and rancidity
- (iii) malleability and ductility

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**44.** Name the system which facilitates communication between central nervous system and the other parts of the body. Mention two types of nerves it consists of along with their organs of origin.

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**45.** How do organisms , whether reproduced asexually or sexually maintain a constant chromosome number through several generations ? Explain with the help of suitable example.

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**46.** Suggest three contraceptive methods to control the size of human population which is essential for the health and prosperity of a country. State the basic principle involved in each.



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**47.** (a) Explain how the separation of oxygenated and deoxygenated blood is useful in humans ?

(b) Why is double circulation of blood necessary in humans ?

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**48.** What is meant by speciation ? List four factors that could lead to speciation . Which of these cannot be a major factor in the speciation of a self-pollinating plant species. Give reason to justify your answer.

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49. Name one plant hormone which inhibits growth. Write its one more function.

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50. "What was Chipko Andolan"? How did this Andolan ultimately benefit the local people and the environment ?

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51. (i) Name two waste products which are stored in old xylem in plants.

(ii) Name the process by which plants get rid of excess water. Name the pores through which this process takes place.

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**52.** State the function of receptors in our body. Think of any three situations where receptors in the body do not work properly. Mention the problems which are likely to arise.

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**53.** State the principle of working of ocean thermal conversion plant. Explain how the plant works ? Write one essential condition for it to operate properly.

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**54.** Define reproduction. How does it help in providing stability to the population of species ?

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**55.** Explain the term "Regeneration" as used in relation to reproduction of organisms. Describe briefly how regeneration is carried out in multicellular organisms like Hydra.

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**56.** (a) Define reflex action. State its significance.  
(b) How do plants respond to external stimuli ?

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**57.** What is an ecosystem ?

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**58.** What is sustainable management ? Why is reuse considered better in comparison to recycle ?

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**59.** State the basic requirement for sexual reproduction ? Write the importance of such reproduction in nature.

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**60.** Explain with the help of an example each how the following provide evidences in favour of evolution :

(a) Homologous organs

(b) Analogous organs

(c) Fossils

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**61.** Describe double circulation in human beings.

(a) Why is it necessary ?

(b) How are arteries different from veins ?



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**62.** Give the construction, working, advantage and disadvantages of a solar cooker.



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**63.** (a) Name the organ that produces sperms as well as secretes a hormone in human males. Name the hormone it secretes and write its functions.

(b) Name the parts of the human female reproductive system where

fertilization occurs.

(c) Explain how the developing embryo gets nourishment inside the mother's body.

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64. In the following food chain, 100 J of energy is available to the lion. How much energy was available to the producer?

Plants → Deer → Lion

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65. State two advantages of conserving: (i) forests and (ii) wild life.

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66. Explain the nutrition process in Amoeba.





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**67.** Draw a labelled diagram of human heart.



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**68.** What is reflex arc? Draw a labelled diagram to show reflex arc on touching a very hot object.



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**69.** List three techniques that have been developed to prevent pregnancy. Which one of these techniques is not meant for males? How does the use of these techniques have a direct impact on the health and prosperity of a family?



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**70.** (a) Draw the structure of Neuron and explain its function.

(b) How does Phototropism occur in Plants?



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**71.** (a) Write the functions of each of the following parts in a human female reproductive system:

(i) Ovary (ii) Uterus (iii) Fallopain tube

(b) Write the structure and functions of placenta in a human female.



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**72.** A Mendelian experiment consisted of breeding pea plants bearing violet flowers with pea plants bearing white flowers. What

will be the results in  $F_1$  progeny ?

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73. Write the energy conversion that place in a hydropower plant.

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74. (a) Name one gustatory receptor and one olfactory receptor present in human beings.

(b) Write a and b in the given flow chart of neuron through which information travels as an electrical impulse.

Dendrite → a → b → End point of Neuron

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**75.** Name the hormones secreted by the following endocrine glands and specify one function of each :

(a) Thyroid , (b) Pituitary , (c ) Pancreas

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**76.** Write one main difference between asexual and sexual mode of reproduction. Which species is likely to have comparatively better chances of survival - the one reproducing asexually or the one reproducing sexually ? Give reason to justify your answer.

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**77.** Students in a school listened to the news read in the morning assembly that the mountain of garbage in Delhi, suddenly exploded and various vehicles got buried under it. Several people were also

injured and there was traffic jam all around. In the brain storming session the teacher also discussed this issue and asked the students to find out a solution to the problem of garbage. Finally they arrived at two main points - one is self management of the garbage we produce and the second is to generate less garbage at individual level.

(a) Suggest to measures to manage the garbage we produce.

(b) As an individual, what can we do to generate the least garbage ?

Give two points.



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**78.** (a) Mention any two components of blood.

(b) Trace the movement of oxygenated blood in the body.

(c ) Write the function of valves present in between atria and ventricles.

(d ) Write one structural difference between the composition of artery and veins.



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**79.** (a) Define excretion.

(b) Name the basic filtration unit present in the kidney.

(c ) Draw excretory system in human beings and label the following organs excretory system which perform following functions:

(i) form urine.

(ii) is a long tube which collects urine from kidney.

(iii) Store urine until it is passed out.



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**80.** (a) Write the function of following parts in human female reproductive system :

(i) Ovary , (ii) Oviduct , (iii) Uterus

(b) Describe in brief the structure and function of placenta .



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**81.** List the steps of preparation of temporary mount of a leaf peel to observe stomata.



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**82.** A student is viewing under a microscope a permanent slide showing various stages of asexual reproduction by budding in yeast. Draw diagrams of what he observes. (In proper sequence)



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83. Mendel took tall pea plants and short pea plants and produced  $F_1$  progeny through cross fertilisation. What did Mendel observe in the  $F_1$  progeny ?

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84. Name two constituents of biogas.

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85. Different parts of brain are associated with specific functions. Name the part of human brain which perform the following functions:

(a) Sensation of feeling full (b) Vomiting

(c) Picking up a pencil (d) Riding a bicycle

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**86.** What is geotropism ? Draw a labelled diagram of a potted plant showing positive geotropism and negative geotropism .

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**87.** What are acquired traits? What are these traits generally not inherited over generations ? Explain.

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**88.** While teaching the chapter " Our Environment " the teacher stressed upon the harmful effects of burning of fossil fuels, plastic, paper etc. The students noticed the extensive use of plastic and polythen in daily life, which can be avoided and the surroundings can be kept clean. they decided to make their school " plastic and

polythene" free and motivated each other for its minimum use.

(a) Why should the use of polythene and plastic be reduced in daily life ?

(b) In what ways would the students have avoided the use of plastic and polythene in their school ?

(c) How would the students have motivated each other for the success of their decision ?



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**89.** What is " Sustainable management of natural Resources " ?

What is it necessary ? Which one out of reuse and recycle, would you practice in your daily life and why ?



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90. (a) Write the reaction that occurs when glucose breaks down anaerobically in yeast.

(b) Write the mechanism by which fishes breath in water.

(c) Name the balloon like structures present in lungs. List its two functions.

(d) Name the respiratory pigment and write its role in human beings.

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91. Name the process and explain the type of nutrition found in green plants. List the raw materials required for this process. Given chemical equation of the mentioned process.

(b) Write three events that occurs during this process.

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92. What is variation ? How is variation created in a population ?

How does the creation of variation in a species promotes its survival ?

(ii) Explain how, offspring and parents of organisms reproducing sexually have the same number of chromosomes.

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## Section B

1. Why is epidermal peel generally taken from lower surface of the leaf?

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2. Name two types of fissions. Name two living beings of each type which reproduce by these methods of fission.



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3. Name the process of asexual reproduction shown by yeast. What type of living being is yeast? What is its commercial importance?



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4. What do you observe on seeing the slides showing reproduction in amoeba? What is the name given to this method of reproduction in Amoeba?



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5. Why do raisins absorb water when soaked in water? Explain the phenomenon.



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6. Draw a labelled diagram of a stomatal apparatus with open stomatal pore.

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7. Name the type of asexual reproduction in which two individuals are formed from a single parent and the parental identity is lost.

Draw the initial and the final stages of this type reproduction. State the event with which this reproduction starts.

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8. Draw a labelled diagram of a stomatal apparatus with open stomatal pore.

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9. Draw a labelled diagram to show that particular stage of binary fission in amoeba in which its nucleus elongates and divides into two and a constriction appears in its cell membrane .

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10. Identify the observed various parts of temporary mount of well stained leaf peel, when focused under the high power of a microscope.

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11. Why is epidermal peel generally taken from lower surface of the leaf ?

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**12.** Name the type of asexual reproduction in which two individuals are formed from a single parent and the parental identity is lost.

Draw the initial and the final stages of this type reproduction. State the event with which this reproduction starts.

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**13.** What are the precautions taken to prepare a temporary mount of a leaf peel to show its stomata?

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**14.** Draw in sequence (showing the four stages), the process of binary fission in Amoeba.

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15. Draw a labelled diagram of the experimental set up for the study of liberation of carbon dioxide gas during respiration.

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16. Draw diagrams showing reproduction in yeast in proper sequence.

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## Set I Section A

1. Why is biogas considered an excellent fuel?

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## Set I Section B

1. Write two different ways in which glucose is oxidized to provide energy in human body.

Write the products formed in each case.



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## Set I Section C

1. Write three types of blood vessels. Give one important feature of each.



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2. What are plant hormones? Name the plant hormones responsible for the following:

(i) Growth of stem

(ii) Promotion of cell division

(iii) Inhibition of growth

(iv) Elongation of cells

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3. Name the plant Mendel used for his experiment. What type of progeny was obtained

by Mendel in  $F_1$  and  $F_2$  generations when he crossed the tall and short plants? Write the ratio he obtained in  $F_2$  generation plants.

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4. List two differences between acquired traits and inherited traits by giving an example of

each.



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5. How can we help in reducing the problem of waste disposal?

Suggest any three

methods.



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6. Define an ecosystem. Draw a block diagram to show the flow of energy in an ecosystem.



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1. Define pollination. Explain the different types of pollination. List two agents of pollination. How does suitable pollination lead to fertilization?

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### Set II Section A

1. Write the name of the main constituent of biogas. Also state its percentage.

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### Set II Section B

1. How is oxygen and carbon dioxide transported in human beings?

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2. Write the structure of eye lens and state the role of ciliary muscles in the human eye.

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### Set ii Section C

1. What is feedback mechanism of hormonal regulation? Take the example of insulin to explain this phenomenon.

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### Set iii Section B

1. List two different functions performed by pancreas in our body.

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### Set Iii Section C

1. (a) What a photosynthesis ?

(b) Write a chemical equation to show the process of photosynthesis in plants.

(c) Explain the mechanism of photosynthesis

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### Set I Section C

1. What are fossils? Describe briefly two methods of determining the age of fossiols.



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2. (a) Natural water bodies are not regularly cleaned whereas an aquarium needs regular cleaning. Why ?

(b) What are decomposers? What will be the consequence if the decomposers are completely eradicated from an ecosystem? Give justification in support of your answer.



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3. How is ozone formed in the upper atmosphere? State its importance. What is responsible for its depletion ? Write one harmful effect of ozone depletion.



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4. Write the function of the following in the human alimentary canal:

(i) Saliva (ii) HCl in stomach

(iii) Bile juice (iv) Villi



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5. Write one function each of the following enzymes:

(i) Pepsin (ii) Lipase .



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6. (a) Plants do not have any nervous system but yet, if we touch a sensitive plant, some observable changes take place in its leaves. Explain how could this plant respond to the external stimuli and how it is communicated.

(b) Name the hormone that needs to be administered to

(i) increase the height of a dwarf plant.

(ii) cause rapid cell division in fruits and seeds.

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7. What is biodiversity? Why are forests considered as "biodiversity hot spots"? List two factors responsible for causing deforestation.

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## Set I Section D

1. Define vegetative propagation. List its two methods.

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2. Explain the process of budding in Hydra with the help of labelled diagram.



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3. List two visible traits of garden pea that Mendel considered in his experiments. How do Mendel's experiments show that traits may be dominant or recessive?



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## Set I Section D

1. With the help of a flow diagram, how would you establish that in human beings the sex of a newborn is purely a matter of chance and none of the parents may be considered responsible for a particular sex of a newborn child.



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## Set I Section E

1. In the experimental set-up to show that "the germinating seeds give out the carbon dioxide." Answer the following question:

(i) Why do we keep the conical flask airtight?

(ii) Name the substance kept in the small test tube inside the conical flask. Write its role.

(iii) Why does water rise in the delivery tube?



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## Set II Section A

1. Name the component of sunlight which facilitates drying of wheat after harvesting.

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## Set II Section D

1. (a) If we cross pure - bred tall (dominant ) pea plants with pure - bred dwarf ( recessive ) pea plant we get pea plants of  $F_1$  generation. If we now self- cross the pea plants of  $F_1$  generation, then we obtain pea plants of  $F_2$  generation.

(i) What do the plants of  $F_1$  generation look like ?

(ii) What is the ratio of tall plants dwarf plants in  $F_2$  generation ?

(iii) State the type of plants not found in  $F_1$  generation but appeared in  $F_2$  generation, mentioning the reason for the same.

(b) What are homologous structures ? Give an example. Is it

necessary that homologous structures always have common ancestors ?



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### Set Iii Section C

1. List three roles of forests in conserving the environment . How do the forests get depleted ? State two consequences of deforestation on the environment .



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2. Draw a diagram of human excretory system and label the following :

(i) Urinary bladder

(ii) Left kidney

(iii) Left ureter



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### Set Iii Section D

1. List in tabular form two differences between acquired traits and inherited traits



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2. Give an example of body characteristics used to determine how close two species are in terms of evolution and explain it .



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