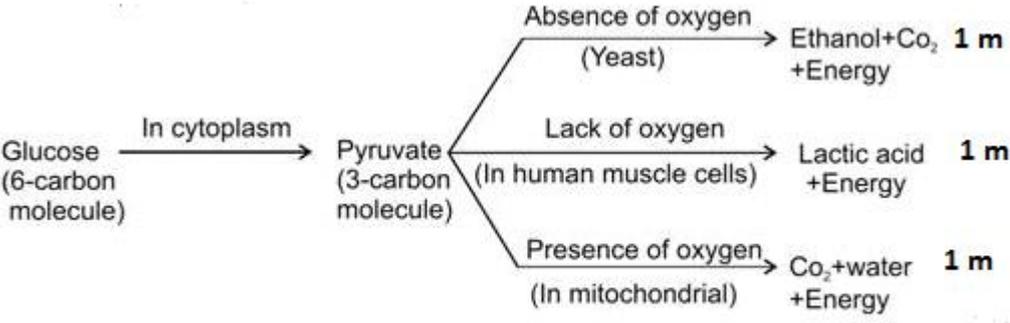
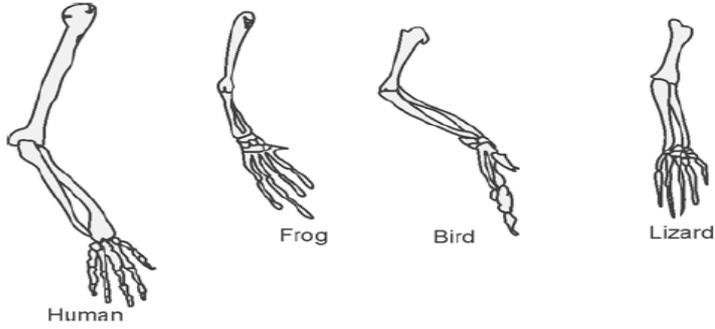
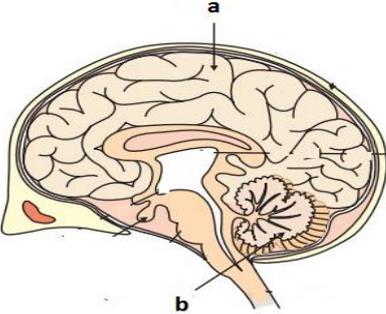


6	<p>Differentiate between trypsin and pepsin. Pepsin is an enzyme which acts only in acidic medium ,trypsin is an enzyme which acts in alkaline medium. pepsin is secreted by gastric juice, trypsin secreted by pancreatic juice. Pepsin is secreted in stomach, trypsin is secreted in small intestine. Pepsin is situated in gastric glands, trypsin is situated in pancreas.</p>	1
7	<div style="text-align: center;">  <p>(Break down of glucose by various pathways)</p> <p>Or</p> <p>In mammals and birds why is it necessary to separate oxygenated and de-oxygenated blood? It is necessary in mammals and birds to separate oxygenated and de-oxygenated blood because this makes their circulatory system is more efficient and helps in maintaining constant body temperature.</p> <p>Or</p> <p>The separation of oxygenated and deoxygenated blood allows a highly efficient supply of oxygen to body. This system is useful in animals that have high energy need as it provides more oxygen to body. Mammals and birds need oxygen to obtain energy to maintain constant body temperature.</p> </div>	3
8	<p>The genotype of green stemmed tomato plants is denoted as GG and that of purple stemmed tomato plants is denoted as gg. When these two are crossed with each other:</p> <p>(a) What colour of stem would you expect in the F1 progeny? (b) Give the percentage of purple stemmed plants if F1 plants are self pollinated. (c) In what ratio would you find the genotypes GG and gg in the progeny?</p> <p>a) Green as G denotes dominant gene b) 25 % c) GG- 25%</p> <p>gg-25% Thus ratio is 1: 1 in F2 progeny</p>	3
9	<p>List two differences in tabular form between dominant trait and recessive traits. What proportion of the plants in the F2 generation / progeny were round, in Mendel's cross between round and wrinkled pea plants?</p>	3

		Dominance	Recessive		
		1. A dominant factor or allele expresses itself in the presence or absence of a recessive trait.	A recessive trait is able to express itself only in the absence of a dominant trait.		
		2. For example, tall plant, round seed, violet flower, etc. are dominant characters in a pea plant.	For example, dwarf plant, wrinkled seed, white flower, etc. are recessive traits in a pea plant.		
		Ratio is 3:1 out of which 3 Round and 1 wrinkled			
		Percentage 75 % round and 25% wrinkled			
10.	<p>What is speciation? List two factors that could lead to speciation. Which of these cannot be a major factor in the speciation of a self-pollinating plant species and why?</p> <p>The process by which a new species develops from the existing species is known as speciation. Factors that lead to speciation:</p> <ul style="list-style-type: none"> ➤ Geographical isolation ➤ Genetic drift ➤ Natural selection ➤ Gene flow <p>Geographical isolation cannot be a major factor in speciation of a self pollinating plant as it does not depend on another plant for reproduction.</p>				3
11	<p>(a)What are fossils? (b)How is their age determined? (c)State the importance of fossils in the study of evolution.</p> <p>a)Fossils are the preserved remains or traces of animals, plants and other organisms from the remote past.</p> <p>b)Two methods to determine the age of fossils (Any one method)</p> <p>Relative Method:-When dug into the Earth, the fossils closer to the surface are more recent as compared to the fossils found in deeper layers.</p> <p>Radio Isotope dating:-The fossils can also be dated by detecting the ratios of different isotopes of the same element in the fossil material. This process is known as radioisotope dating eg: radiocarbon dating. When living organisms change into fossils, their rate of radioactive C₁₄ decay decreases slowly. In this way, the age of fossils can be determined with the help of radioactive C₁₄.</p> <p>c) Two roles of fossils in tracing evolutionary relationships: To tell us about the similarities between two species To provide links between two groups indicating that perhaps one species evolved from the other.</p>				3

<p>12</p>	<p>(a) Write two factors which could lead to the rise of a new species.</p> <p>(b) (i) What is the scientific term of the organs shown below? (ii) How do these organs provide evidence in support of evolution?</p>  <p>a) Factors that lead to rise of a new species: (any two)</p> <ol style="list-style-type: none"> 1. Geographical isolation 2. Genetic drift 3. Natural selection 4. Gene flow <p>b) i) Homologous organs ii) Homologous organs are similar in form, but perform different functions in different organisms. These provide strong evidence in the favour of evolution. For example: The bone structure observed in wing of bird, forearm of frog and arms of human beings resemble with each other. Though they look different outside but they are similar in skeletal structure. The same structure developed along different directions due to adaptations to different needs represent divergent evolution.</p>	<p>3</p>
<p>13</p>	<p>Ramesh is working in a MNC .During a free medical check up campaign conducted in his office. Unfortunately Ramesh was diagnosed as HIV positive. He was removed from his job. People started avoiding him and are not even ready to shake hand with him. He acquired HIV due to blood transfusion which was done when he met with an accident.</p> <p>a) What do you mean by HIV positive? Mention the causative organism. b) Mention the full form of STD . Give an example for Bacterial STD. c) What concern should the society show towards HIV positive individuals?</p> <p>a) HIV positive means the person is suffering from Acquired immunodeficiency syndrome (AIDS) .The causative organism is HIV Virus. (½ + ½)</p> <p>b) Sexually Transmitted disease. Gonorrhoea or syphilis is a bacterial STD. (½ + ½)</p> <p>c) any two concerns. (½ + ½)</p>	<p>3</p>

14.	<p>a) Identify the part 'a' and 'b' in the following figure and state their functions</p>  <p>b) Define Reflex Arc. c) Mention names of four phytohormones and state their functions.</p> <p>a) a-Cerebrum- Functions:- (Any one function) The cerebrum controls the voluntary motor actions. It is the site of sensory perceptions; like tactile and auditory perceptions. It is the site of learning and memory.</p> <p>b-Cerebellum-it helps in maintaining the body balance.</p> <p>b) Reflex arc- The pathway of the reflex action is called Reflex arc. Stimulus → Receptor organ → Sensory nerve → Spinal cord → Motor nerve → Effector muscle → respond to stimuli.</p> <p>a) Plant hormones are called as phytohormones. Auxin : Help in the growth of root shoot tips. Gibberellins : Help in vegetative growth. Cytokinins : Promote cell division.</p> <p>Abscissic acid : Inhibit the growth</p>	5
15.	<p>a) How is brain protected from injury and shock? b) Name two main parts of hind brain and state functions of each. c) Define Reflex action. List the components of reflex arc with the help of a flow chart.</p> <p>a) Cranium, meninges and cerebrospinal fluid protect the brain from injury and shocks. b) Hind brain is composed of the cerebellum, pons and medulla oblongata. (Any two) Cerebellum-it helps in maintaining the body balance. Pons-Controls involuntary actions Medulla Oblongata- Medulla controls various involuntary functions; like heart beat, respiration, etc.</p> <p>c) Reflex Action:- Reflex action is an involuntary action in response to stimuli without prior thinking. The path of reflex action is known as reflex arc. Components of Reflex Arc</p> <p>Stimulus → Receptor organ → Sensory nerve → Spinal cord → Motor nerve → Effector muscle → respond to stimuli.</p>	5

16.	<p>a) What is meant by food chain ? b) The number of trophic levels in a food chain is limited.” Give reason to justify this statement c) “Energy flow in food chains is always unidirectional.” Justify this statement d) What is 10 % law? e). Explain how the pesticides enter a food chain and subsequently get into our body.</p> <p>a) A food chain is a linear sequence of organisms in which each organism is eaten by the next member in the sequence. This interaction among organisms involves the transfer of energy from one organism to another. b) According to 10% law of energy transfer, only 10% of the energy from one level goes to the next level , that is, in case of plants, only 10% of their energy is transferred to the primary consumers or herbivores. This process continues and a little energy is transferred from one level to another, The top level will get very less amount of energy and beyond that a level cannot sustain another life. c)The flow of energy is unidirectional. The energy that is captured by the autotrophs does not revert back to the solar input and the energy which passes to the herbivores does not come back to autotrophs. Therefore, in food chain the energy moves progressively through the various trophic levels it is no longer available to the previous level. Thus, The flow of energy in food chain is unidirectional d)According to 10 percent law, 90% of the energy captured from the previous trophic level is lost as heat to the environment and only 10 percent is made available to the next trophic level. e)The pesticides enter a food chain and subsequently get into our body in following way: (i) Pesticides used for crop protection when washed away into the soil or water bodies absorbed by plants. (ii) On consumption they enter our food chain and being non – biodegradable these chemicals get accumulated progressively and enter our body. Biomagnification is the increase in the concentration of a substance with the increase in the trophic level. Lets take the example of DDT which have been applied on the farm lands. producers would accumulate certain amounts of DDT in them and then it would be passed on to the next trophic level. Its concentration will be highest in the last trophic level.</p> <p style="text-align: center;">Or</p> <p>a) Why are Arabari forests of Bengal known to be good example of conserved forests? b) Mention the names of the stakeholders of a forest. c) List two problems that may arise due to monoculture. d) “Burning fossil fuels is a cause of Global warming “.Give reason in support of this statement. e) What is sustainable development? State its main objective.</p> <p>a) The <i>forest</i> department developed a strategy by A .K Banerjee in which the villagers were involved in the protection of the <i>forest</i>. In return for the labour, the villagers were paid and also had some benefit in harvesting operations. They were allowed to collect wood and fodder on payment of nominal fee. In this way, by the In this way, by the active and willing participation of the local people, the sal forests of Arabari were conserved.</p>	5
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b) **Stakeholders** are those who directly or indirectly get benefitted by the *forest* and its products.
Stakeholders are :

1. *forest* department.
2. industries depends on *forests*.
3. people living in and around *forests*.
4. wildlife organisations in the *forests*. They help in conserving *forest* in many ways: they support the wildlife in the *forests*.

c) **Monoculture** is cultivation of a single species of plant.

- i) It destroys a large amount of biodiversity in the area
- ii) Ecological balance is disturbed

d) The burning of fossil fuels such as coal and petroleum releases greenhouse gases such as carbon dioxide and methane into the atmosphere. These green house gases cause green house effect. Green house effects is the phenomenon in which heat radiated from the warmed earth's surface is absorbed by green house gases present in the atmosphere. This trapping of heat earth's average temperature and resulted in the phenomenon known as Global warming.

e) **Sustainable development** means using the natural resources for the developmental processes but also conserving them for the future generations.

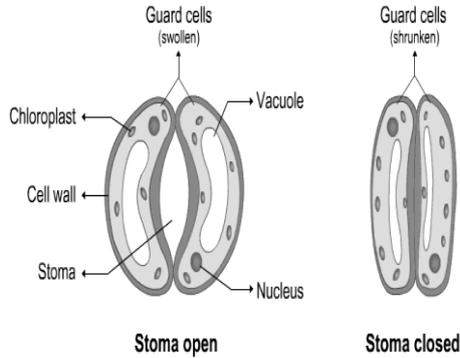
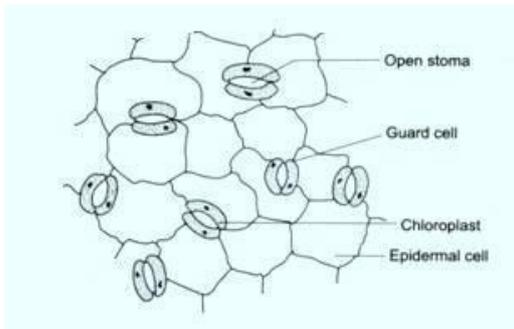
1. Dependence on the conventional sources should be reduced and non conventional sources of energy should be adopted.
2. Resource planning should be done for the judicious use of resources.
3. Natural resources should be conserved and alternate technologies should be used.

SECTION B

SECTION B

17. **A student prepared a temporary slide of leaf peel of stomata. Draw the diagram of the observations he/ she must have made from the slide. List two precautions that he/she must take for obtaining correct observations.**

2



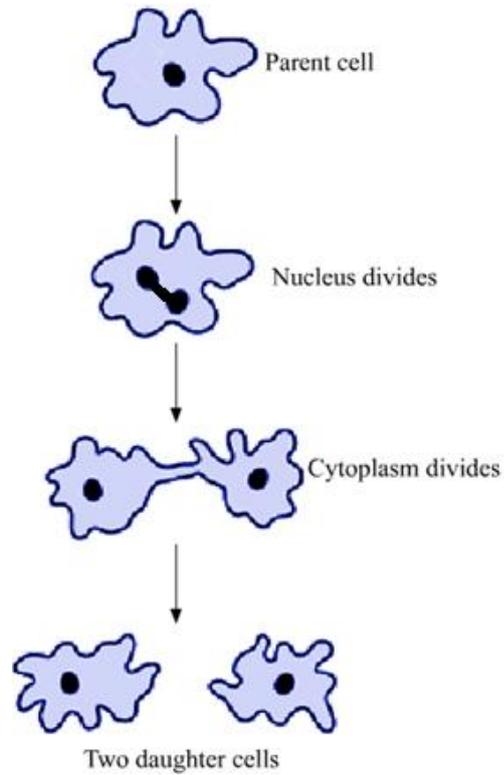
Precautions:

1. Cut the peel to a proper size and avoid folding it.
2. Always place the peel at the centre of the slide and hold the slide at the edges.
3. Do not overstrain or under strain the peel.
4. Always handle the peel with a brush as a needle may damage the cells.
5. Take care to prevent the peel from drying by using glycerine.
6. Place the coverslip gently, avoiding any air bubbles.
7. Remove excess stain and glycerine with a blotting paper.

18.

A student observed a permanent slide showing asexual reproduction in Amoeba. Draw diagrams of the observations he must have made from the slide. Name the process also.

2



The process is known as Binary Fission.