BIOLOGY FORM TWO NECTA 2019

Solutions from: Maktaba by TETEA

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1.

i	ii	iii	iv	v	vi	vii	viii	ix	x
A	C	B	C	A	D	D	C	D	C

2.

i	ii	iii	iv	v	vi	vii	viii	ix	x
True	False	True	True	False	False	True	True	True	False

3.

i	ii	iii	iv	v
E	F	D	H	B

4.(i)food chain

(ii)

(iii) consumers

(iv) ecosystem

(v) ecology.

5.(a)types of organs found in animal body

-lungs

-heart

-liver

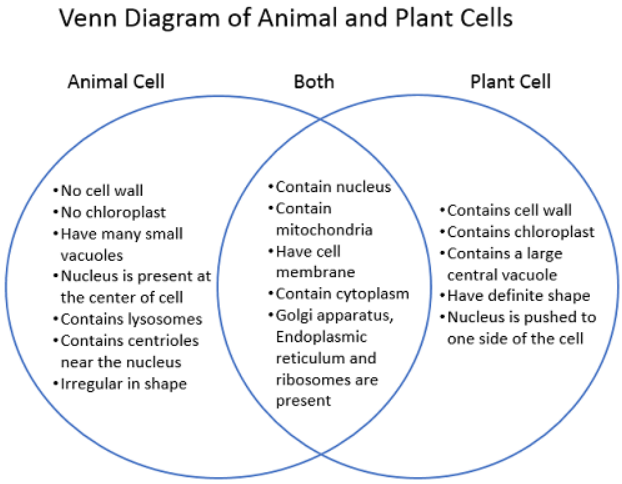
-kidney

-brain

(b)

CELL WALL	PLASMA MEMBRANE
Cell wall is present only in plant cells.	Plasma membrane is present in both plant and animal cells.
Cell wall is composed of cellulose which provides structural strength to the plant cell.	Plasma membrane is made up of proteins and lipids which either allow or permit the entry of molecules in and out of the cell.

(c)



6.(a)Characteristics common to both living things

- Reproduction

-growth

-movement

-sensitivity and irritability

-coordination

-Nutrition

(b)-thermometer

-tap meter

-watch/stop watch

-beam balance.

7(a)Waterborne diseases are illnesses caused by microscopic organisms, like viruses and bacteria, that are ingested through contaminated water or by coming in contact with feces.

(b)-typhod

-chorela

-giardia

-dysentery

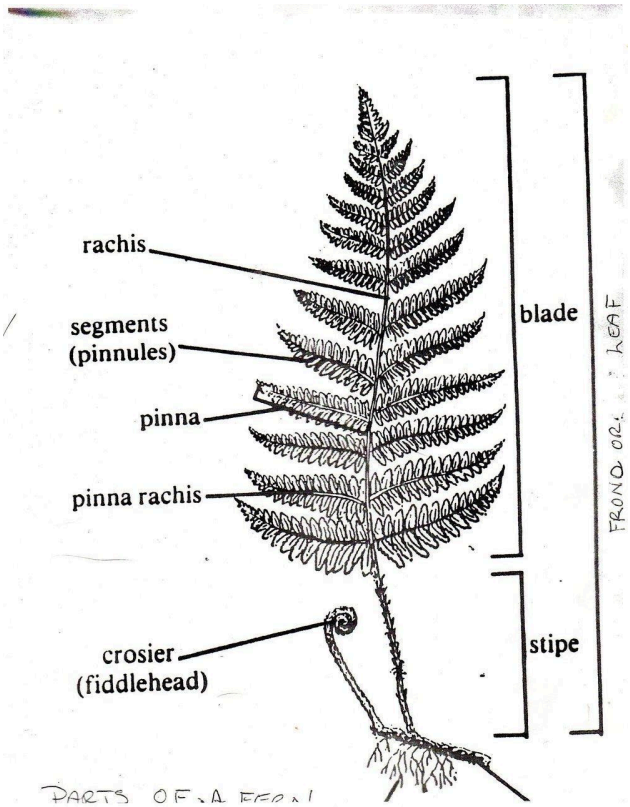
-escherichia coli

-hepatitis A

(c)(i) Typhoid

(ii)Amebiasis

8(a) fern plant diagram.



(b) advantages of fern plant.

-used as food by other animal

-used as ornaments

-increased oxygen due to photosynthesis

-used to hold soil particles together.

9(a)-falling objects

-cutts

-poisoning

-bruises

-slipperly

(b)-Waste is any unnecessary material after the possessor has used the material or that the possessor cannot sell to others at cost. Whether a material is waste or not should be comprehensively judged considering the possessor intention, its property, etc., and cannot be objectively regarded as waste at the time when it is discharged.

-Waste disposal, the collection, processing, and recycling or deposition of the waste materials of human society.

(c)It is because alcohol acts as a stimulant,speeding up the circulation of blood, quickly distributing the poison of the snake throughout the body.

10.FACTORS AFFECTING RATE OF PHOTOSYNTHESIS.

Photosynthesis Photosynthesis is a process by which phototrophs convert light energy into chemical energy, which is later used to fuel cellular activities. The chemical energy is stored in the form of sugars, which are created from water and carbon dioxide.

-Light intensity

Without enough light, a plant cannot photosynthesise very quickly - even if there is plenty of water and carbon dioxide. Increasing the light intensity will boost the rate of photosynthesis.

-Carbon dioxide concentration

Even if there is plenty of light, a plant cannot photosynthesise if there is insufficient carbon dioxide.

-Temperature

If it gets too cold, the rate of photosynthesis will decrease. Plants cannot photosynthesise if it gets too hot.

-The amount of chlorophyll also affects the rate of photosynthesis.Leaves with more chlorophyll are better able to absorb the light required for photosynthesis.

-Water

Water is considered one of the most important factors affecting photosynthesis. When there is a reduced water intake or availability, the stomata begin to close to avoid loss of any water during transpiration. With the stomata closing down the CO2 intake also stops which affects photosynthesis. Therefore, the effect of water on photosynthesis is more indirect than direct.

-Oxygen

Optimum levels of oxygen are favourable for photosynthesis. Oxygen is needed for photorespiration in C3 plants and the by-product of photorespiration is CO2 which is essential for photosynthesis. Also, the energy generated during the oxygen respiration is needed for the process of photosynthesis as well. However, an increase in the oxygen levels beyond the optimum for the plant leads to inhibition of photosynthesis.

11.FACTORS AFFECTING THE RATE OF TRANSPIRATION.

Transpiration Transpiration, in botany, a plant's loss of water, mainly through the stomates of leaves. Stomatal openings are necessary to admit carbon dioxide to the leaf interior and to allow oxygen to escape during photosynthesis, hence transpiration is generally considered to be merely an unavoidable phenomenon that accompanies the real functions of the stomates. It has been proposed that transpiration provides the energy to transport water in the plant and may aid in heat dissipation in direct sunlight (by cooling through evaporation of water), though these theories have been challenged. Excessive transpiration can be extremely injurious to a plant. When water loss exceeds water intake, it can retard the plant's growth and ultimately lead to death by dehydration.

-Relative humidity – Relative humidity (RH) is the amount of water vapor in the air compared to the amount of water vapor that air could hold at a given temperature. A hydrated leaf would have a RH near 100%, just as the atmosphere on a rainy day would have. Any reduction in water in the atmosphere creates a gradient for water to move from the leaf to the atmosphere. The lower the RH, the less moist the atmosphere and thus, the greater the driving force for transpiration. When RH is high, the atmosphere contains more moisture, reducing the driving force for transpiration.

Temperature – Temperature greatly influences the magnitude of the driving force for water movement out of a plant rather than having a direct effect on stomata. As temperature increases, the water holding capacity of that air increases sharply. The amount of water does not change, just the ability of that air to hold water. Because warmer air can hold more water, its relative humidity is less than the same air sample at a lower temperature, or it is 'drier air'. Because cooler air holds less water, its relative humidity increases or it is 'moister air'. Therefore, warmer air will increase the driving force for transpiration and cooler air will decrease the driving force for transpiration.

Soil water – The source of water for transpiration out of the plant comes from the soil. Plants with adequate soil moisture will normally transpire at high rates because the soil provides the water to move through the plant. Plants cannot continue to transpire without wilting if the soil is very dry because the water in the xylem that moves out through the leaves is not being replaced by the soil water. This condition causes the leaf to lose turgor or firmness, and the stomata to close. If this loss of turgor continues throughout the plant, the plant will wilt.

Light – Stomata are triggered to open in the light so that carbon dioxide is available for the light-dependent process of photosynthesis. Stomata are closed in the dark in most plants. Very low levels of light at dawn can cause stomata to open so they can access carbon dioxide for photosynthesis as soon as the sun hits their leaves. Stomata are most sensitive to blue light, the light predominating at sunrise.

Wind – Wind can alter rates of transpiration by removing the boundary layer, that still layer of water vapor hugging the surface of leaves. Wind increases the movement of water from the leaf surface when it reduces the boundary layer, because the path for water to reach the atmosphere is shorter.

Cuticle – The cuticle is the waxy layer present on all above-ground tissue of a plant and serves as a barrier to water movement out of a leaf. Because the cuticle is made of wax, it is very hydrophobic or 'water-repelling'; therefore, water does not move through it very easily. The thicker the cuticle layer on a leaf surface, the slower the transpiration rate. Cuticle thickness varies widely among plant species. In general, plants from hot, dry climates have thicker cuticles than plants from cool, moist climates. In addition, leaves that develop under direct sunlight will have much thicker cuticles than leaves that develop under shade conditions.

ENVIRONMENTAL CONDITIONS – Some environmental conditions create the driving force for movement of water out of the plant. Others alter the plant's ability to control water loss.

Stomata – Stomata are pores in the leaf that allow gas exchange where water vapor leaves the plant and carbon dioxide enters. Special cells called guard cells control each pore's opening or closing. When stomata are open, transpiration rates increase; when they are closed, transpiration rates decrease.