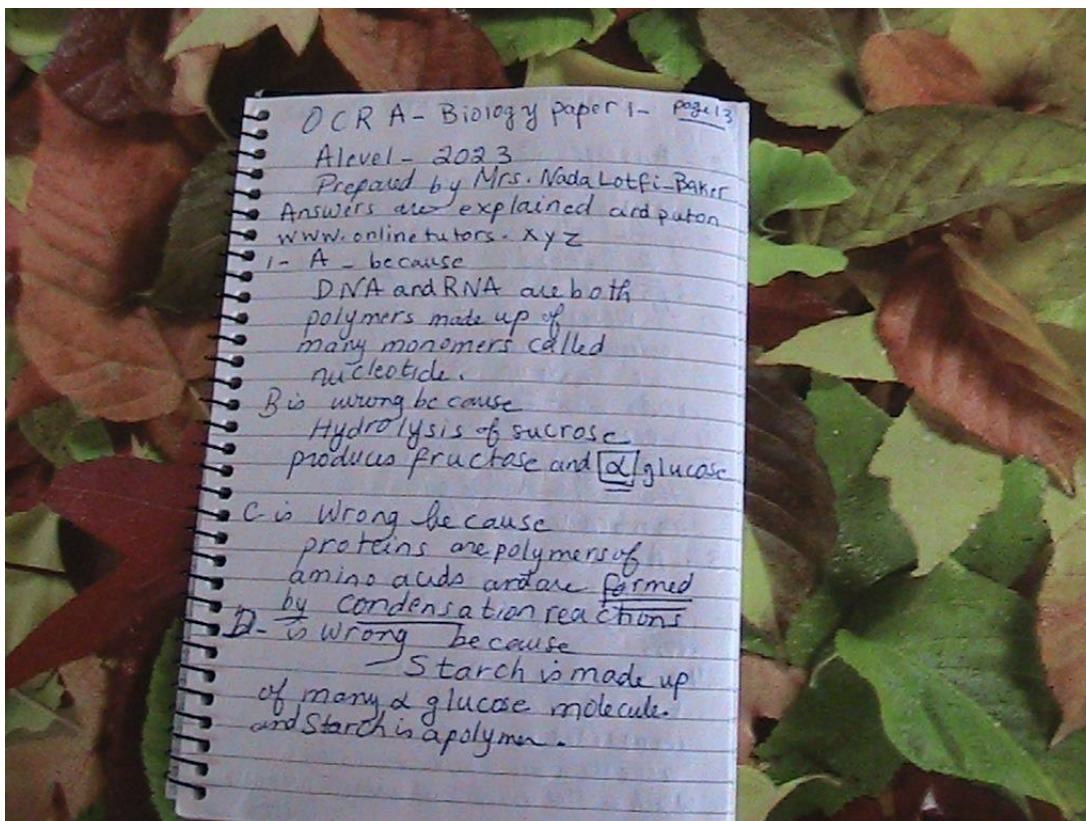


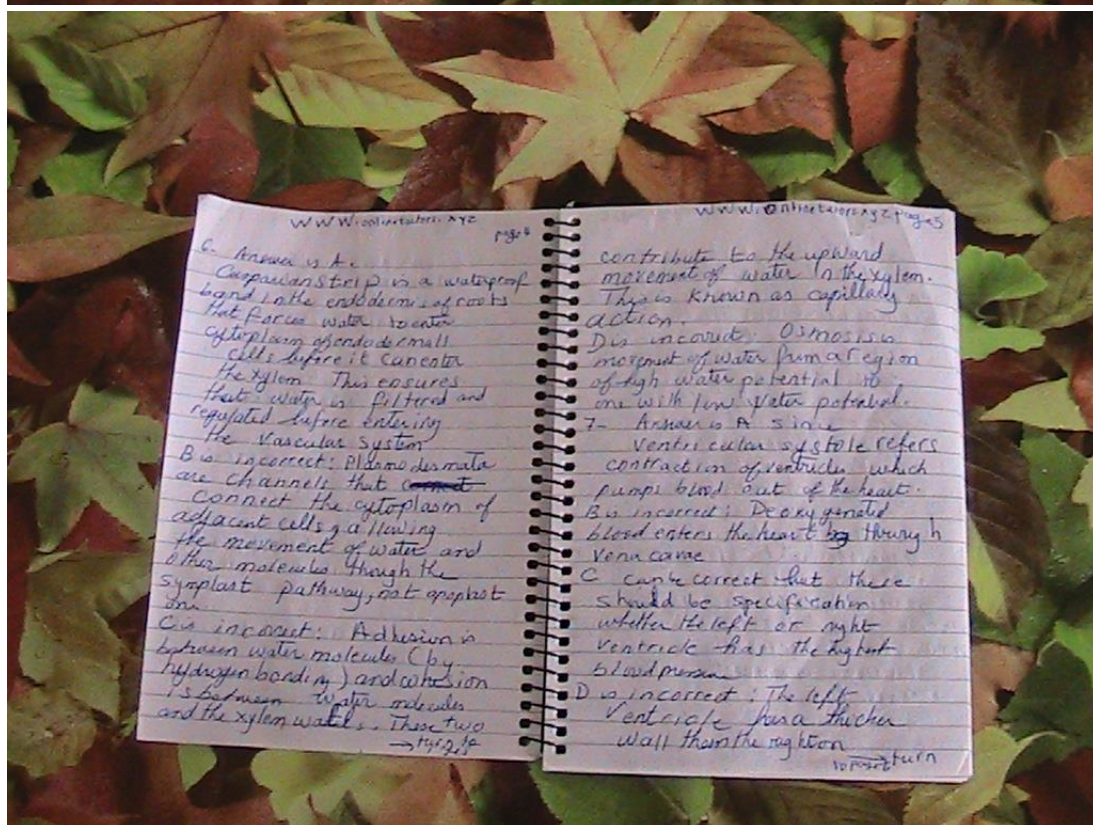
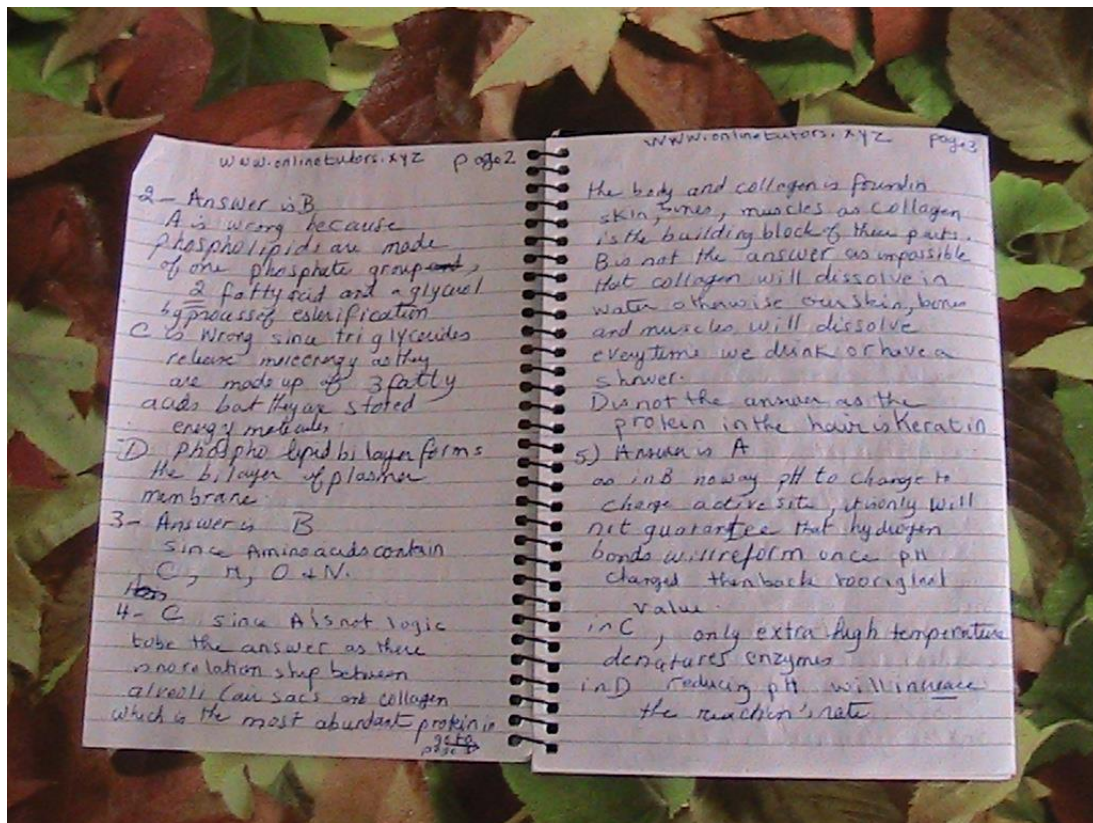
OCR A biology 2023 paper 1 A level past paper

Prepared by Nada Lotfi-Baker owner of

www.onlinetutors.xyz

[A Level Biology A H420/01 Paper J \(ocr.org.uk\)](https://www.ocr.org.uk)





WWW.onlinetutorsxyz page 7

This is because it pumps blood to the entire body requiring more force. The right ventricle pumps blood only to the lungs.

9. Answer is C
 number 1 is wrong because three turns of Calvin cycle produce 6 TP so 5 x turns produces 12 TP
 B is incorrect because effectors (as muscle in humans) are connected to motor neuron.
 D is sensory neuron
 B is unipolar
 D is bipolar neuron

Neurofilaments are called microtubules

WWW.onlinetutorsxyz page 8

11. Answer is B since tip of plant's ~~shoot~~ tip contains ~~photoreceptors~~ photoreceptors as in experiment 1 shows that the seedling bends towards the light even though the tip is not covered in that experiment. This suggests an inhibitory effect. Experiment 3 shows that seedling bends towards the light even when an impermeable sheet is inserted on the shaded side suggesting that the signal is not transmitted through shaded side. Experiment 4 shows that seedling bends towards the light even when tip is removed and replaced on top of agar block, indicating that the signal is transmitted through the agar block.

WWW.onlinetutorsxyz page 9

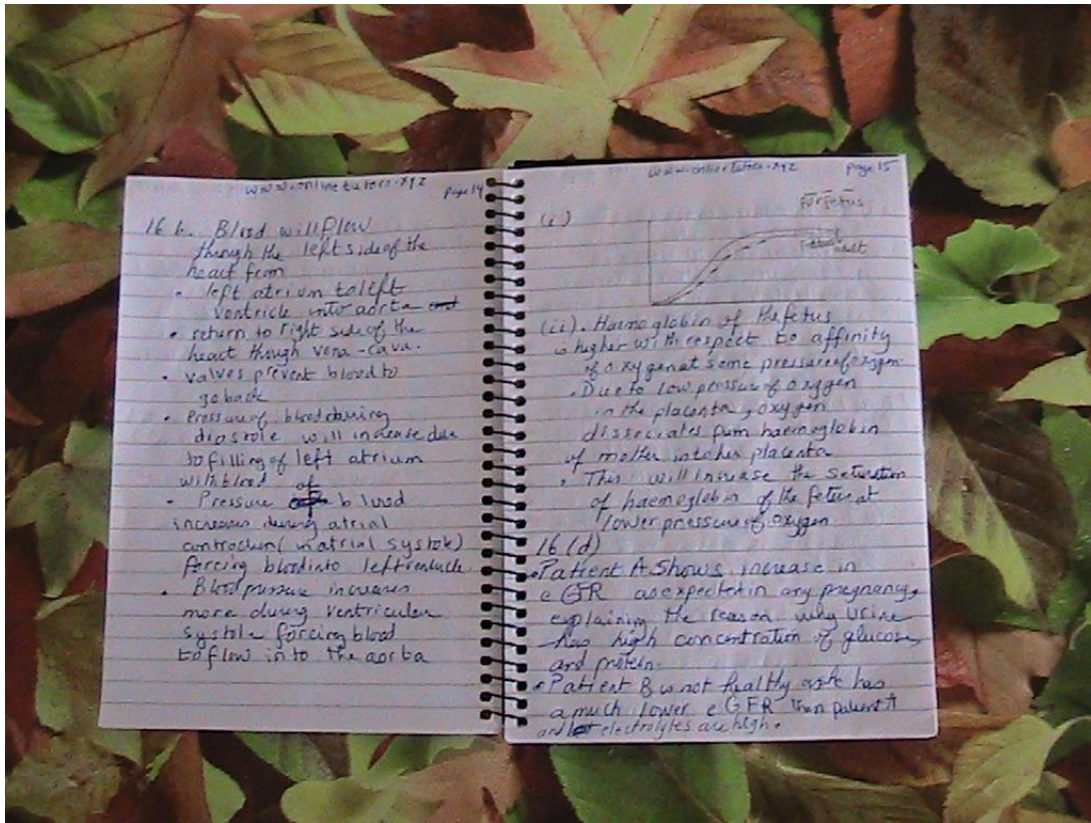
12. Answer is B since communication systems are required to coordinate responses and maintain a near-constant internal environment. This statement is correct as communication systems like hormonal and nervous systems are essential for homeostasis and coordinating bodily functions.
 A is wrong as all signalling occurs over both short & long distances (e.g. hormones can travel through bloodstream)
 C is incorrect since some effectors can respond to both hormonal signals and nervous stimulation.
 D is incorrect since plants do respond to their environments and have communication systems (e.g. through hormones and signalling pathways).

13 - Answer is A
 Pacinian corpuscle is a mechanical pressure receptor located at end of sensory neuron. When pressure is detected through receptor & compressed, it generates potential means depolarization of the membrane of a receptor cell as a result of a stimulus (change in membrane potential).
 (Depolarization means temporary reversal of charge on cell surface membrane of a neuron that takes place when a nerve impulse is transmitted).
 Action potential is a charge that occurs in the electrical charge across the membrane of an axon when it is stimulated and a nerve impulse passes.

Bio wing because Pacinian corpuscle produces both fast hyperpolarized potential then action potential.
 C - Pacinian corpuscles produce due to pressure makes the cell membrane more permeable to Na^+
 D - These corpuscles responds to sensation of touch by transducing mechanical pressure into a generator potential. Remember that pressure is not energy that is why solution is wrong.
 14 - Answer is B
 Observation 3 is incorrect since high concentration of ethanol can cause significant damage to cell membrane is true but graph doesn't show that as the absorbance continues to increase beyond 50% alcohol.

15 Answer is D
 A t-test is used to compare the means of two groups. We know that since we first identified the goal of the experiment where students want to determine if significantly ~~greater~~ the membrane permeability is greater than the 50% ethanol so that will be ethanol. We noticed they compared the means of 2 groups (40% & 50% ethanol).
 Section B
 16 a(i) • $82.5 \times 85 = 7012.5$
 • Unit: cm^3/min
 or • 7.012 and unit is dm^3/min

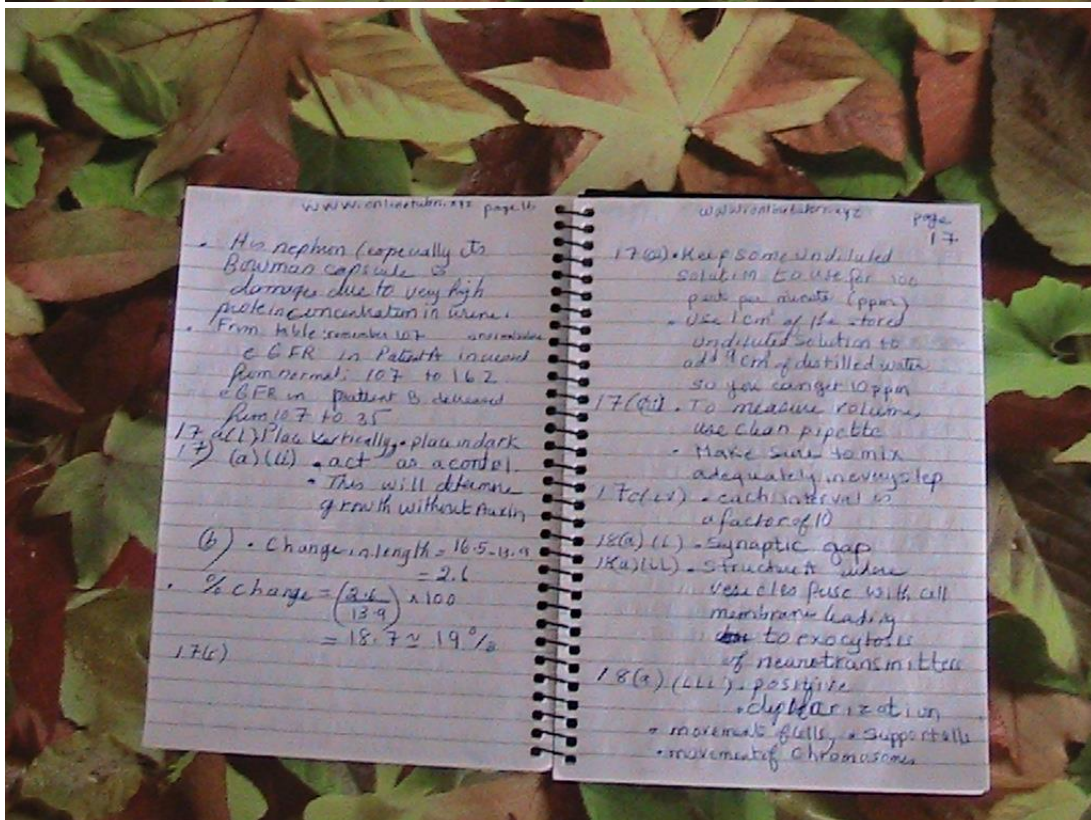
16 a(ii) • Maternal cells as well as fetal cells will receive more oxygen through the blood of the mother.
 • This will help the fetus and the mother to have a faster metabolic rate.
 16 a(iii)
 Conclusion is valid because
 • During the weeks starting 9 → 24 blood pressure decreased as cardiac output increased.
 • This explains that the decrease in blood pressure is due to vascular resistance has decreased.
 Conclusion is not valid because after 24 weeks blood pressure increased.



- 16 (b). Blood will flow through the left side of the heart from
- left atrium to left ventricle into aorta out
 - return to right side of the heart through vena-cava.
 - valves prevent blood to go back
 - Pressure of blood during diastole will increase due to filling of left atrium with blood of
 - Pressure of blood increases during atrial contraction (atrial systole) forcing blood into left ventricle
 - Blood pressure increases more during ventricular systole forcing blood to flow in to the aorta

- (c)
-
- (ii). Haemoglobin of the fetus
- higher with respect to affinity of oxygen at same pressure of oxygen
 - Due to low pressure of oxygen in the placenta, oxygen dissociates from haemoglobin of mother in the placenta
 - This will increase the saturation of haemoglobin of the fetus at lower pressure of oxygen

- 16 (d)
- Patient A shows increase in eGFR as expected in any pregnancy explaining the reason why urine has high concentration of glucose and protein.
 - Patient B is not healthy as he has a much lower eGFR than patient A and electrolytes are high.



- His nephron (especially its Bowman capsule) is damaged due to very high protein concentration in urine.
- From table: remember 107 = normal value
- eGFR in Patient A increased from normal 107 to 162
 - eGFR in Patient B decreased from 107 to 35
- 17 (a)(i) • Plus vertically, plus in dark
- 17 (a)(ii) • act as a control
- This will determine growth without auxin

(b) • Change in length = $16.5 - 13.9 = 2.6$

• % change = $\frac{2.6}{13.9} \times 100 = 18.7 \approx 19\%$

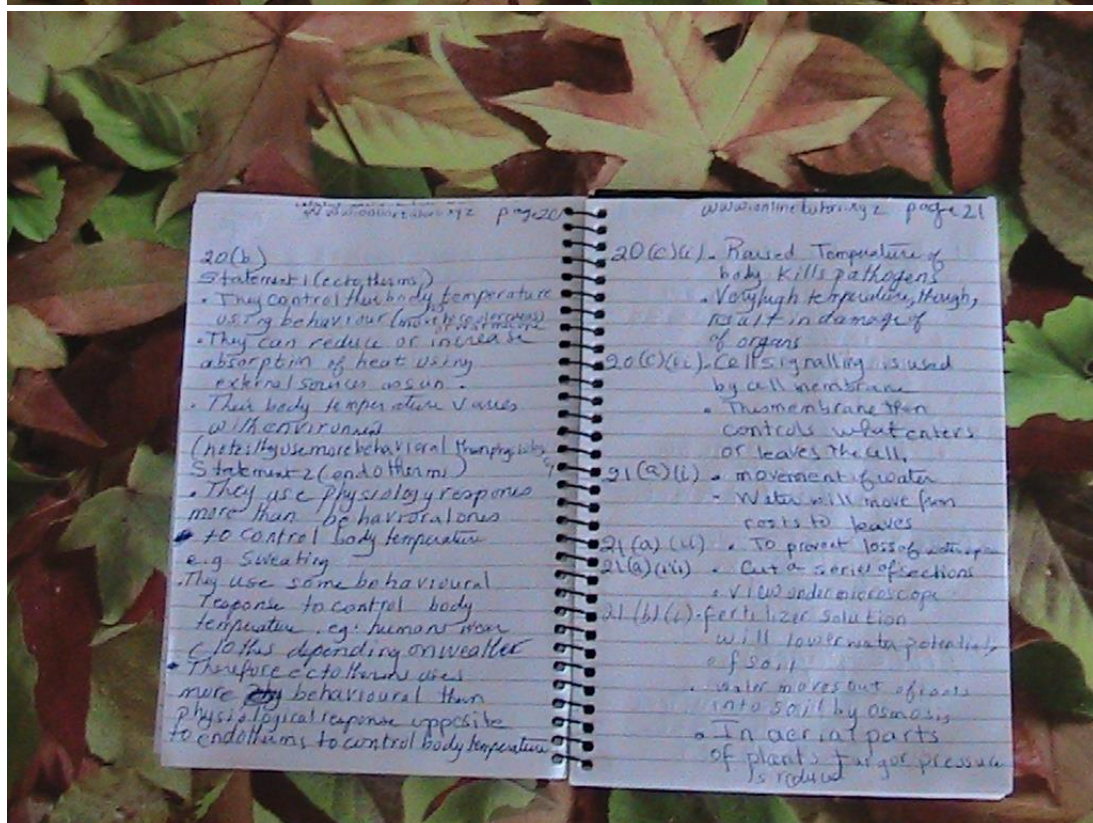
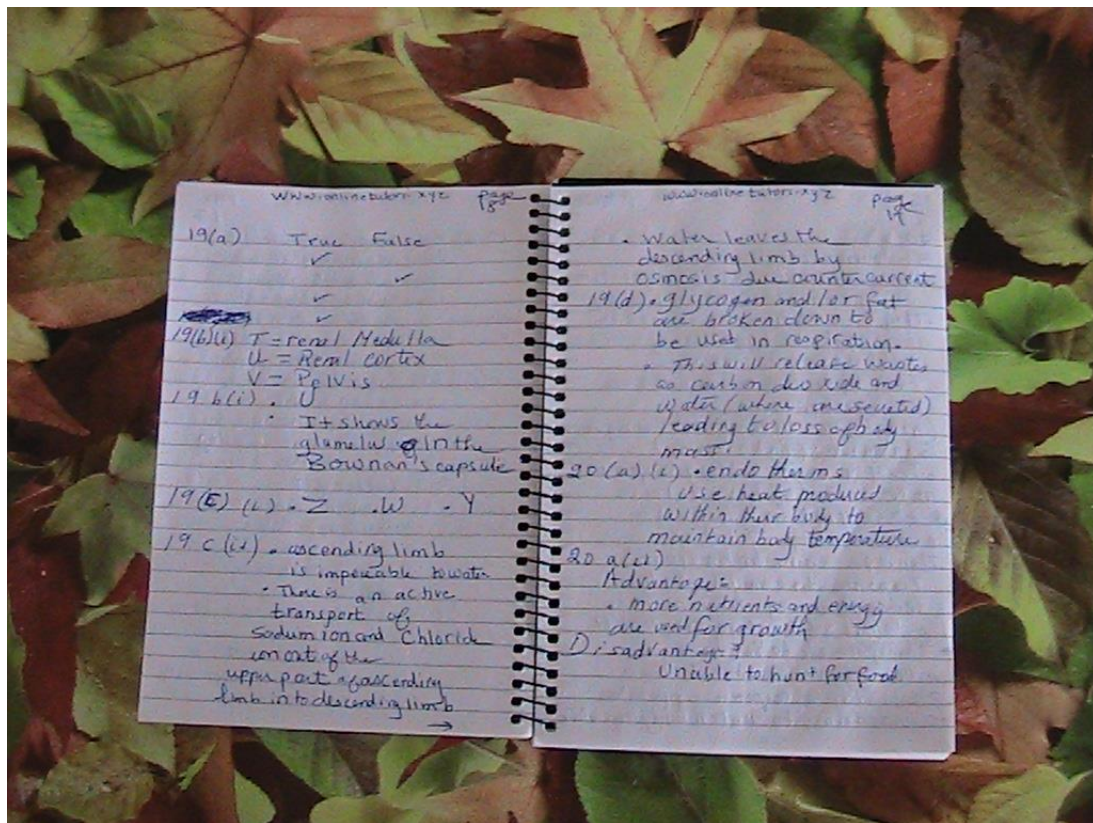
17 (c)

- 17 (a) • Keep some undiluted solution to use for 100 parts per minute (ppm)
- Use 1 cm of the stored undiluted solution to add 9 cm of distilled water so you can get 10 ppm

- 17 (a)(ii) • To measure volume, use clean pipette
- Make sure to mix adequately in every step
- 17 (c)(i) • each interval is a factor of 10

- 18 (a)(i) • Synaptic gap
- 18 (a)(ii) • Structure where vesicles fuse with cell membrane leading to exocytosis of neurotransmitter

- 18 (a)(iii) • positive cytoplasmic streaming
- movement of cytoplasm
 - movement of chromosomes



21. b(ii) it is correct because
- ATP is required for active transport of mineral ions into xylem
 - it is incorrect because
 - cyanide might not have entered roots

21. b(iii)
- high light intensity increases rate of light dependent reaction
 - More stomata open to allow gas exchange

More papers
are coming when
I will write answers
Aasha Lotfi-Baker
07854144887