1.1.1. D✓✓
1.1.2. B
1.1.3. B
1.1.4. A
1.1.5. D
1.1.6. C
1.1.7. B
1.1.8. D
1.1.9. B
1.1.10. D

1.2.1. Chloroplast/chlorophyll/stroma✓
1.2.2. micelle✓
1.2.3. enzymes✓
1.2.4. appendix✓
1.2.5. aorexia✓ or bulemia✓ or malnourished✓
1.2.6. cortex✓ (6)

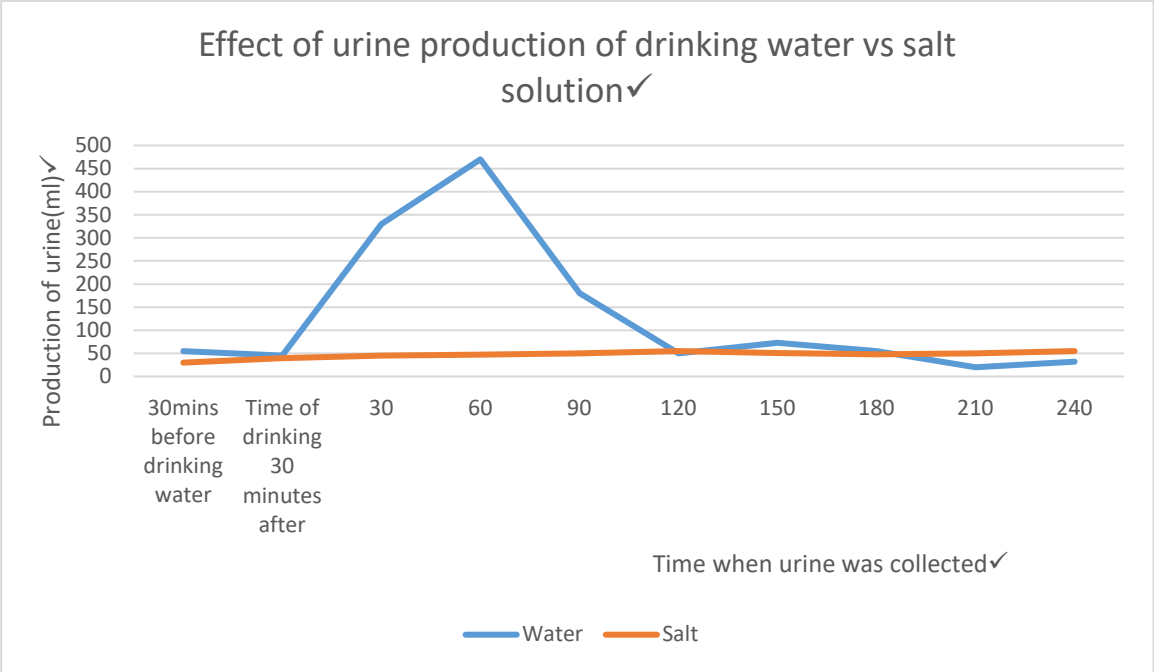
1.3.1. B only✓✓
1.3.2. A only✓✓
1.3.3. B only✓✓
1.3.4. A only✓✓ (8)

1.4.1. 10kg✓ (1)
1.4.2. Elephant✓ (1)
1.4.3. 1 kg✓ (1)
1.4.4. Animals with a lower✓ mass✓ will have a higher metabolic rate✓/vice versa (3)
/6/

1.5.1. 1- oesophagus✓
2-stomach✓
3-pyloric sphincter✓
6-gall bladder✓
7-liver✓ (5)

1.5.2. Sores bile✓ (1)
1.5.3. ANY FOUR:
Forms ammonia✓
Makes plasma proteins✓
makes vit A✓
Breaks down alcohol and drugs✓
Converts glucose into glycogen✓ and back✓
Stores fat soluble vitamins✓
Breaks down steroids✓ (4)

2.1.1.



Key✓
Type✓
Plotting✓✓
Scale✓ (8)

2.1.2. 60 minutes✓ (1)

2.1.3. 180mins✓✓ (2)

2.1.4. Greater than✓ (1)

2.1.5. a. 3750ml✓✓ (2)

b.

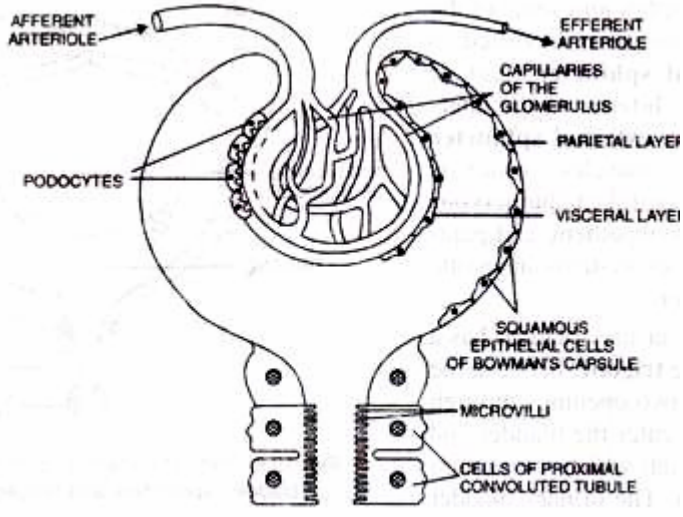


Fig. 19.7. Diagram showing structure of a Malpighian corpuscle.

Podocytes (C✓)
Any other three✓✓✓
Correct diagram and heading✓ (5)

c. Podocytes✓ assist in filtration✓
afferent is wider than efferent✓ for pressure difference✓
squamous epithelium✓ thin walled for diffusion✓
Slit pores✓ to allow substances through✓ (4)
TWO POINTS MAX

2.1.6. Receptor cells in the afferent arteriole detect change✓→
Adrenal gland is stimulated✓→
To stop secreting aldosterone✓ →
This decreases re-absorption of sodium from the renal tubules into the surrounding blood vessels✓→
Salt levels decrease✓→
Returns to normal✓ FOUR MAX (4)

2.1.7. Raise sample numbers✓ repeat✓ (2)

2.1.8. Any controlled/fixed variable✓ TWO (2)
Same amount of water✓
Same conditions✓
Same temperature✓
Same way of measuring✓

2.2.1. As light intensity✓ increases✓, photosynthesis increases✓ (3)

2.2.2. The plant is exposed to more light and more carbon dioxide✓ (1)

2.2.3. water✓/enzymes✓/chlorophyll✓/temperature✓ (2)

2.2.4. Decide on the plants✓
Decide on the number of plants✓
Learn to use the equipment✓
Gather the carbon dioxide tank✓
ANY THREE PLANNING STEPS (3)

3.1.1. 1- red blood cell✓
3-capilary✓ (2)

3.1.2. Dissolves gases in for easy diffusion✓\ (1)

3.1.3. thin✓
moist✓
large✓
wel ventilated✓
well protected✓ ANY FOUR (4)

3.1.4. • 7% Dissolves in water (plasma)✓ in the blood plasma to form carbonic acid (H_2CO_3) ✓

- 30% Combines with haemoglobin✓ to form carbaminohaemoglobin in the RBC's. ✓
- 63% forms Bicarbonate ions (HCO_3^-)✓ in the RBC's when it combines with water to form carbonic acid ✓which then dissociates to form bicarbonate ions and H^+ ions ✓. (6)

3.1.5. • Between the body cells✓ and capillaries✓ (2)

3.2.1. A- pharynx✓
B-epiglottis✓
C-larynx✓
D-trachea✓
E-bronchi✓ (5)

3.2.2. ribs✓ and intercostal muscles✓/pleural membrane✓ (2)

3.2.3. Prvides sound✓ (1)

3.2.3

Inspiration	Expiration
Ribs move up and out✓	Ribs move down and in✓
Voolume increases	Volume decreases
Pressure decreases	Pressure increases
Diaphragm contracts and moves down	Diaphragm moves up and relaxes
Air rushes in	Air rushes out

(7)

✓ for table

3.3.1. Across the inner cel membrane✓ of the mitochondrion✓ (2)

3.3.2. phosphorylation✓ (1)

3.3.3. sweat✓ (1)

3.4. Moist✓ as its in water✓
large✓ as there are many lamellae✓
well protected✓ in the operculum✓
well ventilated✓ from the movement✓
Thin as only one cell thick✓ (6)
SIX POINTS MAX

4. Absorption: ✓(a)

- Protein is in the form of amino acids✓ which will move through the villi wall✓ into the capillary✓
- Glucose✓ will move through the wall in the same way✓ (NOTE only one mark here if the same is repeated)
- fats✓ will break into gycerol✓ which will move through on its own into the lacteal✓ and fatty acids✓ which will combine with the bile salst✓ to form a micelle✓ which will move in to the lacteal✓.

(6 max)

Glycolysis✓ (g)

- glucose✓ is broken into 2 3 carbon molecules✓ of pyruvate✓ producing 4 ATP and using 2 ATP✓ which results in a nett gain of 2 ATP✓

(3 max)

Krebs cycle✓(k)

- Pyruvate enters a mitochondrion through the membrane✓
- Pyruvate gets broken down✓
- Releasing High Energy Hydrogen atoms ✓and Carbon Dioxide✓

(3 max)

Ox Phos and ETC: ✓(o)

- NADH becomes NAD✓ and releases an energised hydrogen✓ into the transport protein.
- This hydrogen then transfers its energy✓ (*in the form of an electron)* into the electron transport chain. ✓
- The hydrogens collect in the intermembrane space✓, as they are pumped through every complex. ✓
- THE ENERGY: The energy (*from the electrons)* is passed through the THREE protein complexes✓, and finally used to be given to oxygen✓ (the last electron acceptor) which then binds with two hydrogen ions in✓ order to create water. ✓
- THE HYDROGEN IONS: The hydrogens then move passively back✓ into the mitochondrial matrix through the ATP pump (ATP synthase). ✓ This creates energy ✓ (through the movement of the Hydrogen ions) which powers the joining of the ADP and the P ✓into an ATP molecule

(5max)