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IGCSE Biology 0610 Topical Past Papers + Jawapan

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Biology 0610

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Sampel bermula di muka surat sebelah

ALTERNATIVE TO PRACTICAL questions

Alternative to Practical 1

Fig. 2 shows three sets of apparatus, **A, B** and **C**, used to measure different biological processes.

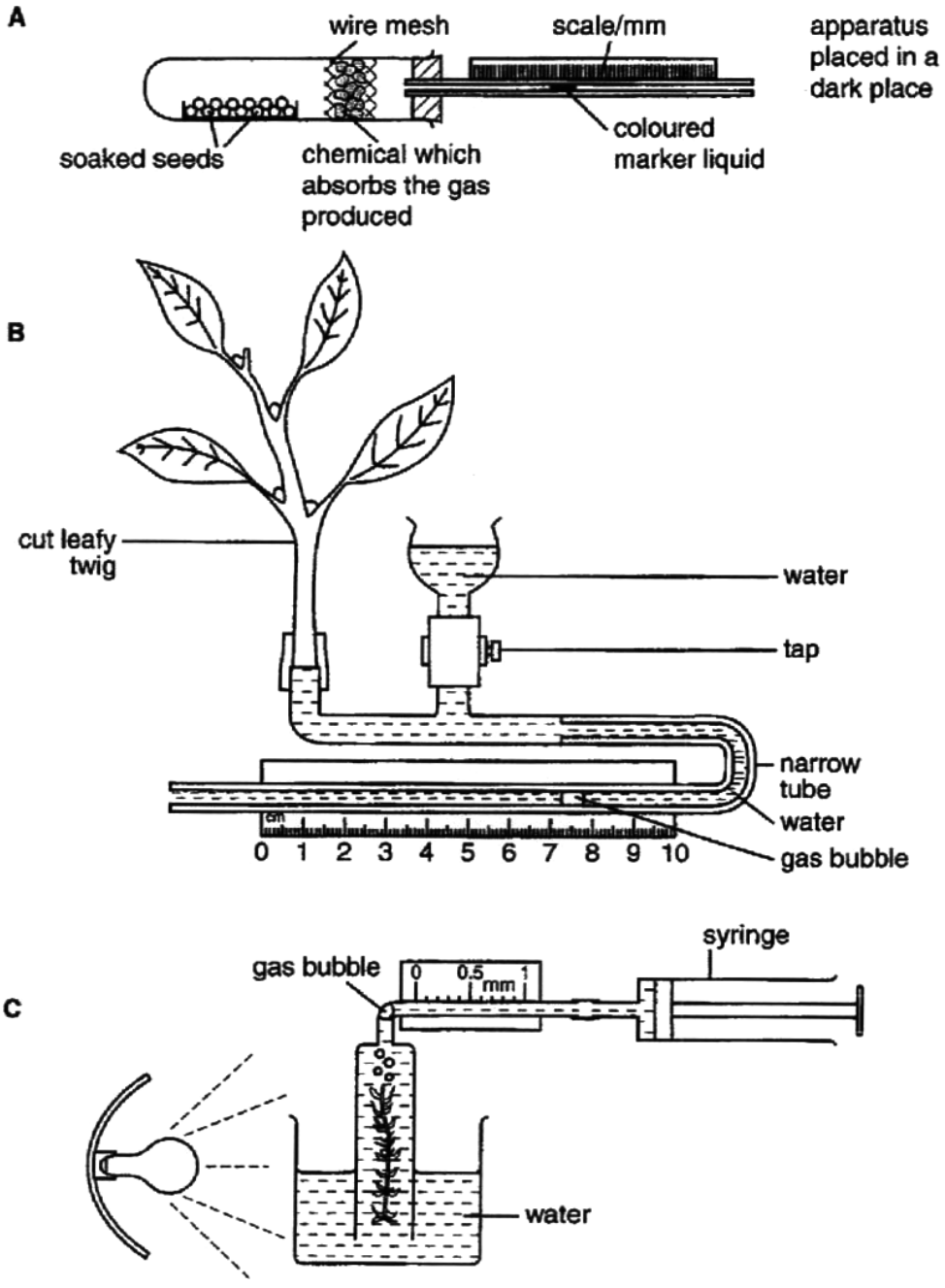


Fig. 2

(a) Name the process that can be measured by each apparatus.

A .....

B .....

C ..... [3]

Cells and cell processes

CORE questions

Core 1

Two characteristics of living organisms are nutrition and respiration.

(a) (i) List **three** other characteristics of living organisms.

1. .....

2. .....

3. ..... [3]

(ii) Name the process by which green plants produce carbohydrates.

..... [1]

[Total: 4]

Animal nutrition

CORE questions

Core 1

(a) Much of the food we eat has to be digested.

(i) Explain why food needs to be digested.

[2]

(ii) Describe the part played by chewing in the process of digestion.

[2]

(b) (i) Describe how food is moved along the oesophagus by peristalsis.

[3]

(ii) Students sometimes wrongly suggest that food falls down into the stomach under the effect of gravity. Suggest **one** piece of evidence which would oppose this idea.

[1]

Plant nutrition and transport

CORE questions

Core 1

(a) The chemical equation for photosynthesis shown below is incomplete.

$$\underset{\text{water}}{6H_2O} + \text{.....} \xrightarrow[\text{plant pigment}]{\text{energy}} \underset{\text{glucose}}{C_6H_{12}O_6} + \text{.....}$$

(i) Complete the equation in **either** symbols **or** words. [2]

(ii) State the source of energy for this reaction.

[1]

(iii) Name the plant pigment necessary for this reaction.

[1]

(iv) Which mineral is needed by a plant to form this pigment?

[1]

(b) (i) Name the tissue in which the sugar produced in photosynthesis is carried to other parts of the plant.

[1]

(ii) In many plants some of the sugar formed in photosynthesis is converted to starch for storage. Explain the advantage of storing starch rather than sugar.

..... [2]

(iii) Name the carbohydrate, formed from sugar produced in photosynthesis, which is used to build cell walls.

[1]

[Total : 9]

EXTENSION questions

Extension 1

Fig. 3 shows part of the lower surface of a typical dicotyledonous leaf.

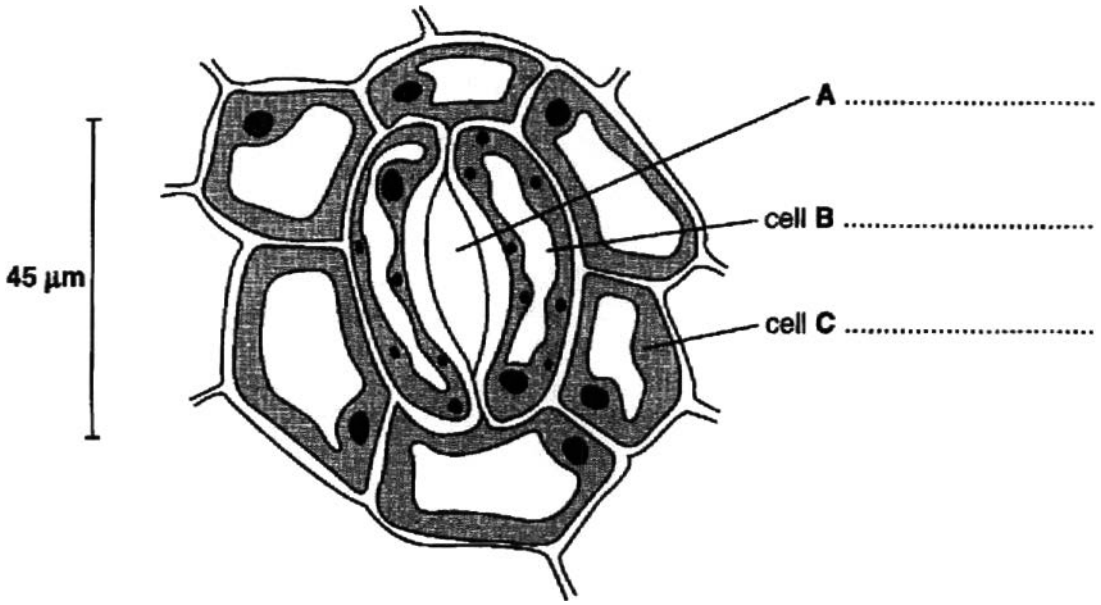


Fig. 3

(a) On Fig. 3, label part **A** and the cells **B** and **C.** [3]

The surfaces of the leaves of two species of plant were studied and the number of stomata per unit area (stomatal frequency) was recorded.

Cobalt chloride paper changes colour in the presence of water.

Pieces of cobalt chloride paper were attached to the upper and lower surfaces of leaves on both plants. The plants were set up for one hour during the day. Any colour changes were recorded. The experiment was repeated for one hour at night. Table 1 shows the results.

Table 1

plant species	stomatal frequency		colour change to cobalt chloride paper			
			day		night	
	lower surface	upper surface	lower surface	upper surface	lower surface	upper surface
Cassia fistula	0	18	✗	✓	✗	✗
Bauhinia monandra	22	0	✓	✗	✗	✗

Key
✓ colour change
✗ no colour change

(b) Describe the differences in stomatal distribution between the two species of plant.

..... [2]

Core 2

Fig. 1 shows the urinary system and its blood supply.

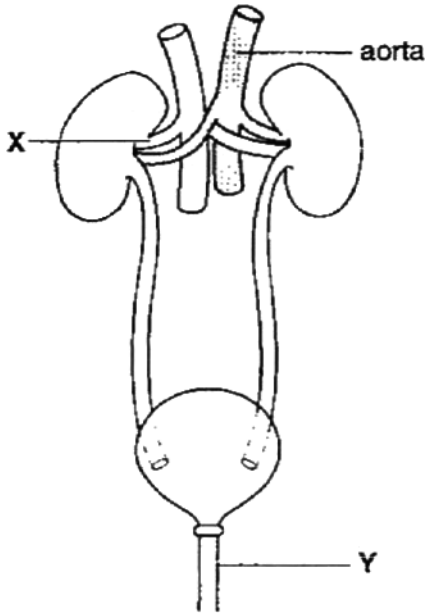


Fig. 1

(a) (i) Identify the structures labelled **X** and **Y** on Fig. 1.

X .....

Y ..... [2]

(ii) A function of the kidney is to remove urea from the blood. State **one** other function of the kidney.

..... [1]

(b) The liver forms urea by breaking down excess amino acids. Name **two** other substances which are broken down by the liver.

1. .....

2. ..... [2]

(c) The liver and kidneys are organs which help to maintain a constant internal environment.

Which term describes this process?

..... [1]

[Total:6]

Cells and cell processes – answers

Core 1

a (i) any three of these
- growth (or alternative wording)
- movement (or alternative wording)
- irritability / sensitivity (or alternative wording)
- excretion (or alternative wording)
- reproduction (or alternative wording)

(ii) photosynthesis

Core 2

In order in the table

- Respiration
- Reproduction
- Excretion
- Nutrition / feeding

Core 3

a (i) B – cell membrane

C – cytoplasm

(ii) chloroplasts

b <u>red blood cell</u>

any one of these functions with its relevant adaptation

carries / combines with oxygen
- haemoglobin present

more space for haemoglobin
- lack of nucleus

oxygen uptake / release
- biconcave shape / increased surface area

<u>root hair cell</u>

uptake of water / minerals
- increased surface area / cell extension

reject anchorage as a function

Animal nutrition – answers

Core 1

a(i) to change food into simple / small / soluble form / molecules
for absorption / diffusion(into intestine wall / villi) / carriage in blood

(ii) any two of these
- make small enough to swallow
- increase surface area of particles
- mix with saliva / enzyme / amylase

b(i) any three of these
- contraction of (circular) muscles behind food / bolus
- relaxation of muscles in front
- occurs rhythmically / in waves
- food forced forward / along tube

(ii) any one of these
- can swallow standing on head / hanging upside down
- can swallow in space with no gravity
- some mammals (standing on four legs) have horizontal oesophagus
- some mammals can regurgitate food against gravity

c(i) A – label to salivary gland / mouth / pancreas
B – label to stomach
C – label to pancreas
D – label to stomach / pancreas / small intestine

(ii) protein / named protein
amino acids / polypeptides / peptides

Core 2

a(i) 66 / 0.6 = 110
110 x 100 g fruit = 11 (kg)

(ii) carbon, hydrogen, oxygen, nitrogen

b(i) add to Benedict's solution / Fehling's reagent
heat
use of water bath / goggles / any other relevant safety practice

(ii) colour change to orange (accept yellow / brick red/ red-brown)

c(i) any one of these
- aids peristalsis / movement of food along gut(or alternative wording)
- prevents constipation(or alternative wording)
- reduces fat absorption / risk of bowel cancer(or alternative wording)

(ii) any one of these
- vitamin C
- maintains healthy skin
- wounds heal more rapidly
- prevents scurvy
- assists uptake of iron

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