O-Level Biology

Paper 2

Unsolved Topical

Past Papers With Marking Scheme
According to New Syllabus (2023-2025)

2014-2021

Title O-LEVEL Biology Paper 2

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Preface

Excellence in learning can't be claimed without application of concepts in a certain context. In this regard one of the perfect approach is to start logically in chunks; like chapter wise learning and applying it on exam based questions.

This booklet provides an opportunity for practice of exam based questions which has been classified on the basis of syllabus topics and more precisely on teacher's recommendation basis. Extensive working of Team MS Books has tried to take this booklet to perfection by:

- Removing all the repeated questions but added their references at relevant places.
- Keeping all the question in a hierarchy from early years to most recent years.
- Adding Answering Key / Marks Scheme at the end of each topic.
- Maintaining actual spacing between consecutive questions and within options as per CIE format which gives students a more realistic feel of attempting question.

In addition to all this; review, feedback and contribution in this booklet by various competent teaches of subject belonging to renowned school chains make it most valuable resource and tool for both teachers and students. With all believes in strengths of this resource material I can confidently claim its worth in achieving brilliance.

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O-Level Biology

Paper 2

TABLE OF CONTENT

Cells

Q3/22/M/J/12

1 In Fig. 3.1, the line drawn represents the cell membrane of a plant cell.

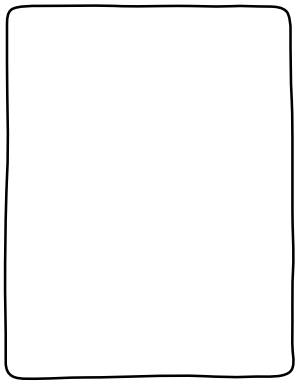


Fig. 3.1

(a) On Fig. 3.1 draw, name and label

(i) a structure that gives the cell its rigid shape,

(ii) a structure that contains chromosomes,

(iii) a structure that contains varying amounts of water, ions and sugars. [3]

(b) List three structural changes that must occur in young, unmodified plant cells as they develop into xylem tissue.

1 .....

2 .....

3 ..... [3]

Q3/22/O/N/13

2 Fig. 3.1 shows six different animal and plant cells.

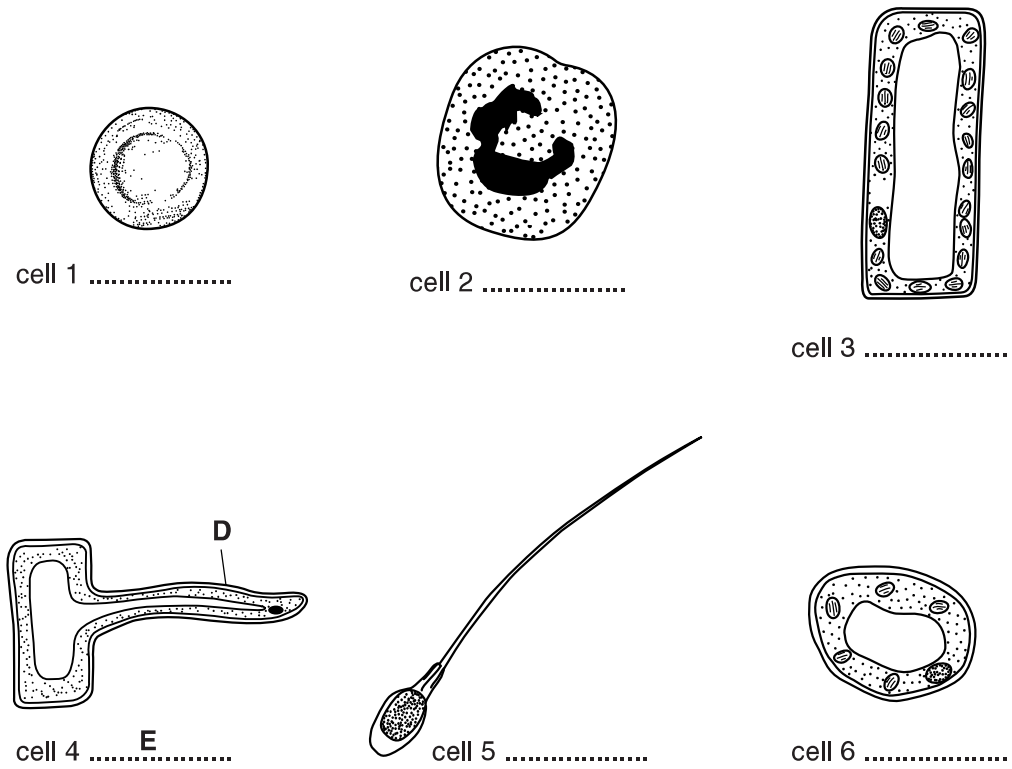


Fig. 3.1

(a) (i) Name cells 4 and 5. Write your answers below.

cell 4.....

cell 5..... [2]

(ii) Describe the function of structure **D** in cell 4.

.....

.....[3]

(b) You are now required to identify each cell **by letter**, following a series of instructions.

When you have identified each cell, write the appropriate letter beneath the identified cell in Fig. 3.1, in the space provided.

Cell **E** has already been identified for you.

Select a cell in Fig. 3.1, then ask yourself the following questions.

Q1 Does the cell have a cell wall?
if it does, go to Q2
if it does not, go to Q3

Q2 Does the cell have chloroplasts?
if it does, go to Q4
if it does not, then it is cell **E**

Q3 Does the cell have a nucleus?
if it does, go to Q5
if it does not, then it is cell **F**

Q4 Does the cell show more than 5 chloroplasts?
if it does, it is cell **G**
if it does not, then it is cell **H**

Q5 Does the nucleus occupy more than half of the cell's cytoplasm?
if it does, it is cell **J**
if it does not, then it is cell **K**

When you have completed this process for the cell you selected, repeat the process for another cell, and continue until all cells have been identified by letter. [5]

[Total: 10]

Q1/21/M/J/14

3 Fig. 1.1 shows a sample of human blood seen using a microscope.

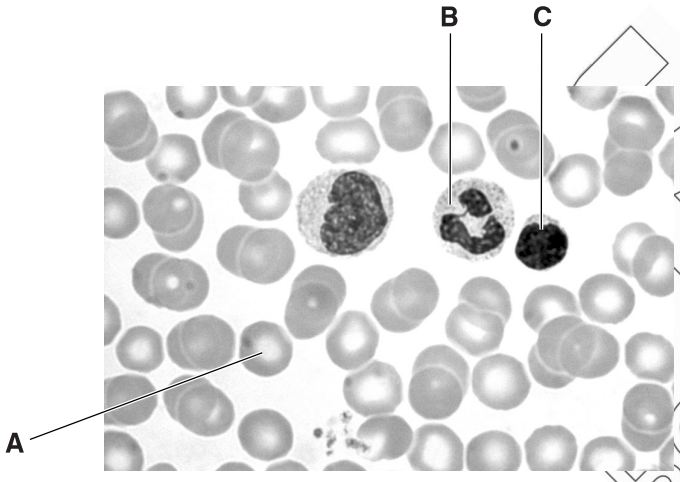


Fig. 1.1

(a) (i) Name the type of cell labelled **A** in Fig. 1.1. State the function of this type of cell.

type of cell .....

function

.....

[2]

(ii) Use your knowledge of the structure of this type of cell to suggest why the cell labelled **A** in Fig. 1.1 appears to be more lightly coloured at its centre than at its edge.

.....

.....

.....

.....

.....[3]

Q6/P22/M/J/16

4 (a) Describe the differences in structure and function between a cell wall and a cell membrane.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[6]

(b) Explain, with examples, the relationship between cells, tissues and organs.

.....

.....

.....

.....

.....

.....

.....

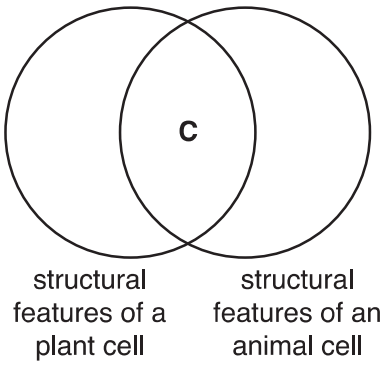
.....

.....[4]

[Total: 10]

Q2(d)/21/O/N/19

5 **(d)** The diagram shows how the structural features found in plant cells and in animal cells can be grouped together.



List **three** features that would be grouped in region **C** on the diagram.

1 .....

2 .....

3 .....

[3]

Q3/22/M/J/12

1 (a) (i) cell wall + correct drawing (outside existing line);

(ii) nucleus + correct drawing (must be in cytoplasm);

(iii) vacuole / cytoplasm + correct drawing (if vacuole, must be larger than the nucleus.); [3]

If no marks scored through unacceptable drawings, allow max. 1 if all 3 are shown in the correct positions – vacuole in the middle, cell wall on the outside and nucleus between.

(b) elongation of cell (R cylindrical);

loss of cell contents / or one named content (A ref. death of cell / hollow)
(R chloroplasts / dissolving of cell contents.);

loss of end walls;

addition of thickening / strengthening material / lignin; [max. 3]

Q3/22/O/N/13

2 (a) (i) (cell 4) - root hair;

(cell 5) - sperm(atozoon) / male gamete; [2]

(ii) (root hair) increases surface area;

(for) absorption / movement (A correct named method of molecular transport) into **AW**;

minerals / ions / salts (or named);

water;

oxygen;

(cell wall) gives mechanical support / allows turgor; [max 3]

(b) cell 1 (RBC) – **F**;

cell 2 (WBC) – **K**;

cell 3 (palisade) – **G**;

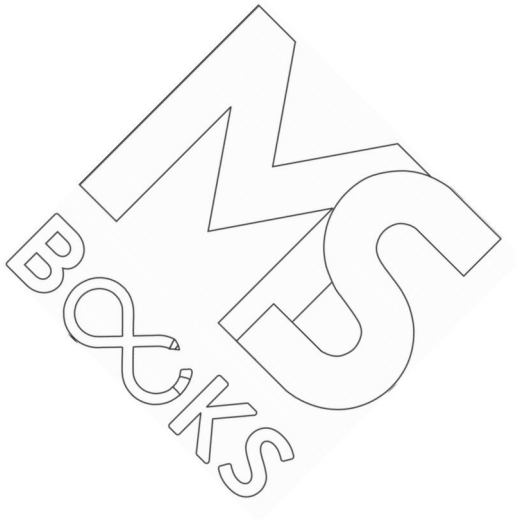
cell 5 (sperm) – **J**;

cell 6 (spongy) – **H** ; [5]

[Total 10]

Q1/21/M/J/14 **Q 3**

Question	Expected Answer	Mark	Guidance
9 (a) (i)	red (blood cell) ; absorb / carry / transport oxygen / transport CO_2 ;	[2]	 **R** carry substances **Ig** contain haemoglobin
(ii)	thinner in middle / ref. biconcave ; ref. haemoglobin ; more (haemoglobin) at edges than at centre ; light more easily able to pass through centre ; lack of nucleus ;	[3]	



Q6/P22/M/J/16 **Q 4**

Question	Expected answers	Additional guidance	Marks
10 (a)	*structure:* 1. cell wall thick / cell membrane thin ; 2. cellulose in cell wall ; 3. fat / protein in cell membrane ; 4. cell wall surrounds OR protects cell membrane **ORA** ; *function:* 5. wall <u>permeable</u> + membrane semi-<u>permeable</u> AW ; 6. cell wall no control / cell membrane has control over what enters cell ; 7. cell wall involved in turgor / support / protection / shape / prevents bursting ; 8. osmosis (only) through membrane ; 9. active transport (only) through membrane ;		[max 6]
(b)	1. (cell) the unit of life AW ; 2. tissues are made up of cells AW ; 3. cells in tissues have common / specific function ; 4. organs are made up of tissues AW ; 5. working / combining together ; 6. one example each of a named <u>cell</u> identified as such + a named <u>organ</u> identified as such ;	**A for tissue examples including:** blood, muscle, nervous, epithelial, connective, xylem, phloem, palisade, epidermis **A for organ examples including:** muscle, heart, leaf, flower, root, stem	[max 3] [1]
			[Total 10]