**NAME:……………………………… ……………………………..ADM NO…………………**

**231/1**

**BIOLOGY PAPER 1**

**(THEORY)**

**JULY/AUGUST 2017**

**TIME:2 HOURS**

**FORM THREE**

**MWAKICAN JOINT EXAMINATIONS – 2017**

**INSTRUCTIONS TO STUDENTS:**

1. **Write your name and admission number in the spaces provided.**
2. **Answer all the questions in this paper in the spaces provided.**
3. **Additional pages must not be inserted.**

**FOR EXAMINER'S USE ONLY**

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| **QUESTION** | **MAXIMUM SCORE** | **STUDENT'S SCORE** |
| **1-26** | **80** |  |

1. (a) What is mean by the term binomial nomenclature? 1mk

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(b) Give two reasons why classification is important. 2mks

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1. (a) What is the formula for calculating linear magnification of a specimen when using a hand lens? 1mk

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(b) Give a reason why staining is necessary when preparing specimens for observation under the microscope. 1mk

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1. Plant cells do not burst when immersed in distilled water. Explain . 2mks

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1. State three functions of Golgi apparatus. 3mks

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1. Distinguish between diffusion and osmosis. 2mks

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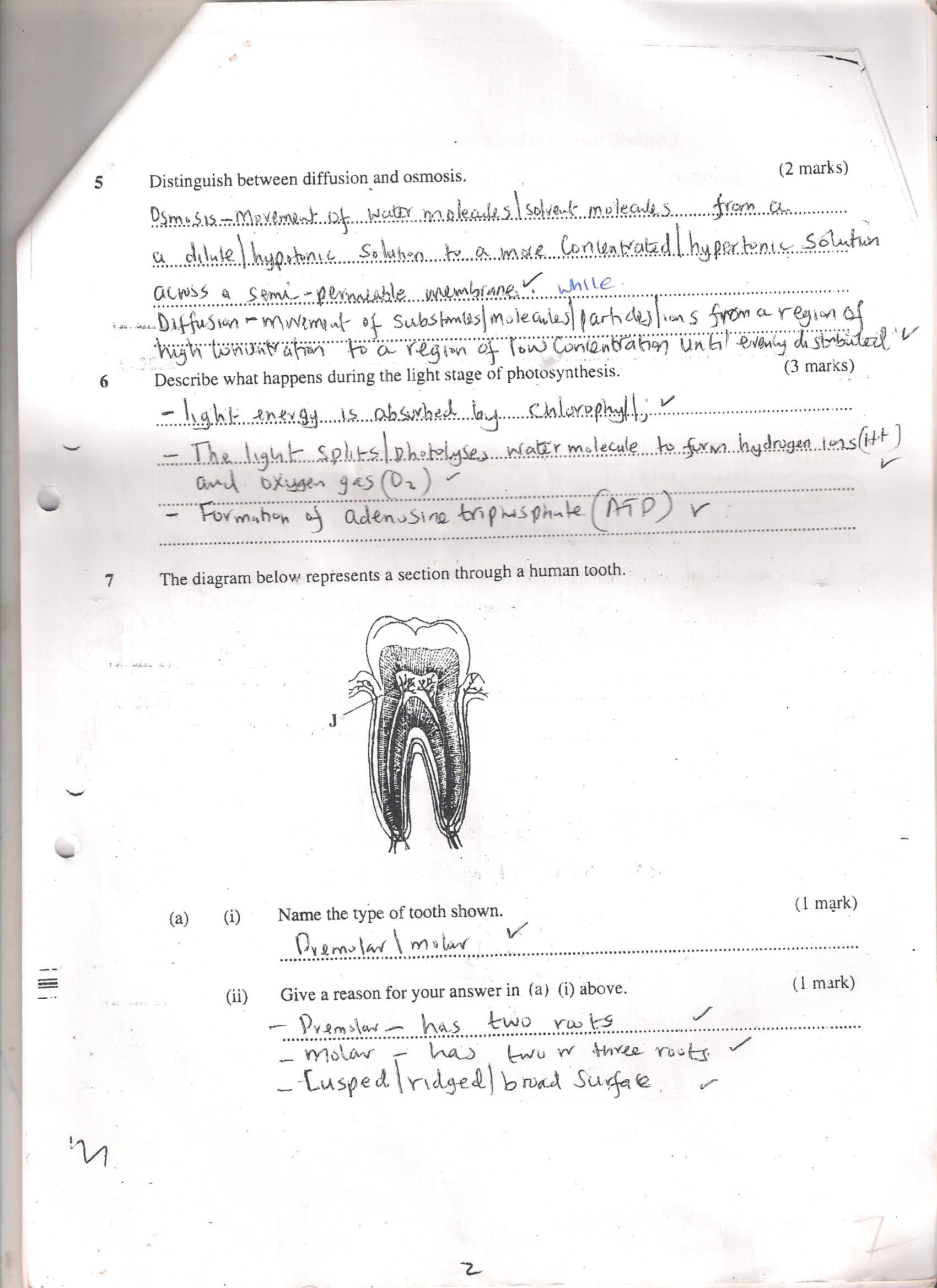
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1. Describe what happens during the light stage of photosynthesis. 3mks

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1. The diagram below represents a section through a human tooth.



1. (i) Name the type of tooth shown 1mk

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(ii) Give a reason for your answer in (a)(i) above. 1mk

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1. State the functions of the structures found in the part labeled J. 2mks

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1. (a) Name a fat soluble vitamin manufactured by the human body. 1mk

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(b) State two functions of potassium ions in the human body. 2mks

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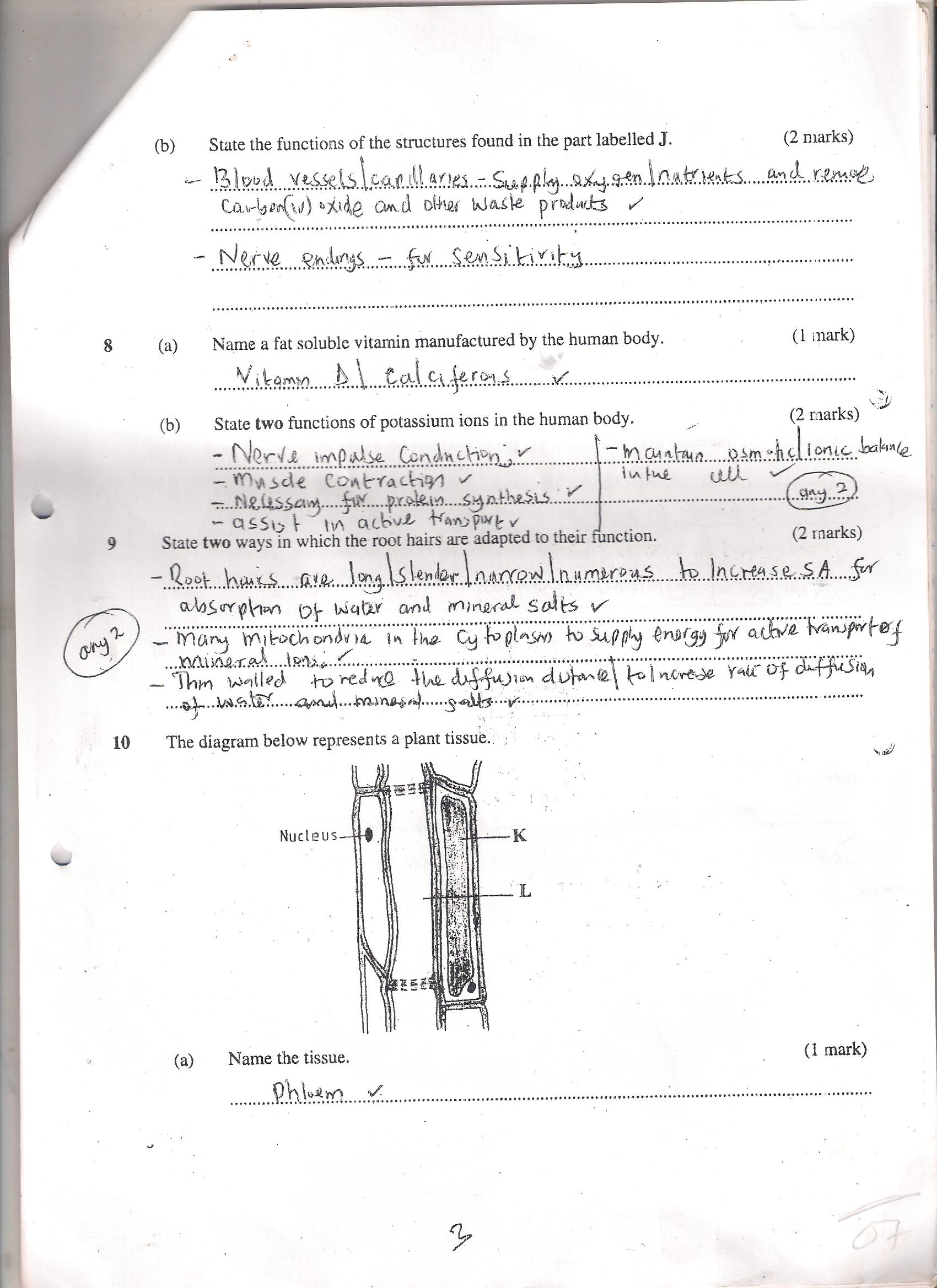
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1. State two ways in which the root hairs are adapted to their function. 2mks

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1. Then diagram below represents a plant tissue.



1. Name the tissue 1mk

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1. Name the cells labeled K and L. 2mks

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1. What is the function of the companion cell? 1mk

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1. (a)What prevents blood in veins from flowing backwards? 1mk

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(b) State two ways in which the red blood cells are adapted to their function. 2mks

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1. (a) Name two structures for gaseous exchange in aquatic plants. 2mks

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(b) What is the effect of contraction of the diaphragm muscles during breathing in mammals? 3mks

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1. (a) Name the products of anaerobic respiration in Animals 2mk

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(b) What is oxygen debt? 1mk

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1. (a) What is the meaning of the following terms:
2. Homeostasis 1mk

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1. Osmoregulation? 1mk

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(b)Name the hormones involved in regulating glucose level in blood. 2mks

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1. (a) Distinguish between population and community. 2mks

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(b) Name a method that could be used to estimate the population size of the following organism:

i. Fish in a pond 1mk

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ii.Black jack in a garden 1mk

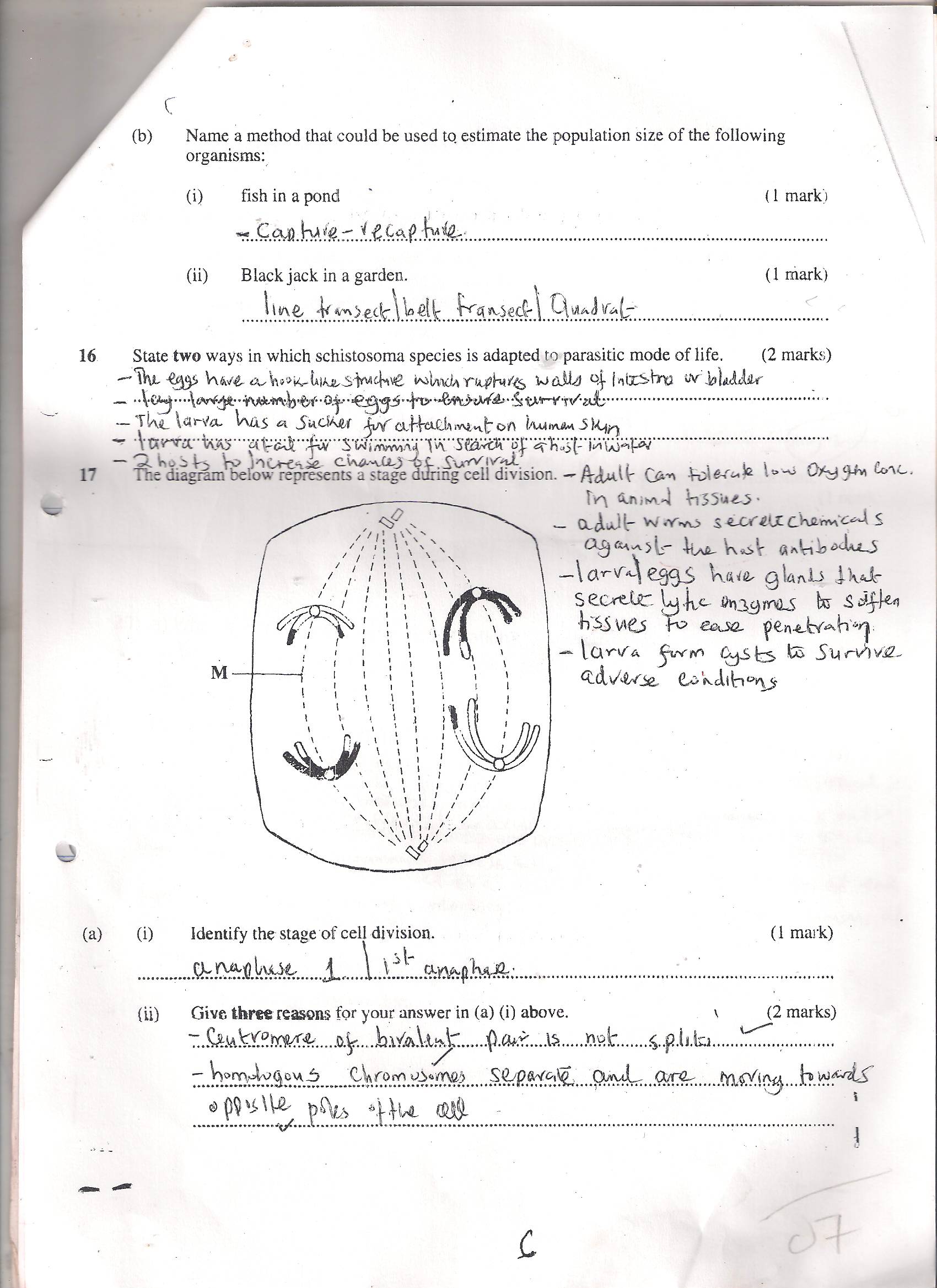
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1. State two ways in which schistosoma species is adapted to parasitic mode of life. 2mks

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1. The diagram below represents a stage during cell division.



1. (i) Identify the stage of cell division. 1mk

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(ii) Give three reasons for your answer in (a)(i) above. 2mks

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1. Name the structures labeled M. 1mk

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(b) State three conditions in the nephron that enhance ultra-filtration. 2mks

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19 (a) Distinguish between pyramid of number and pyramid of biomas. 2mks

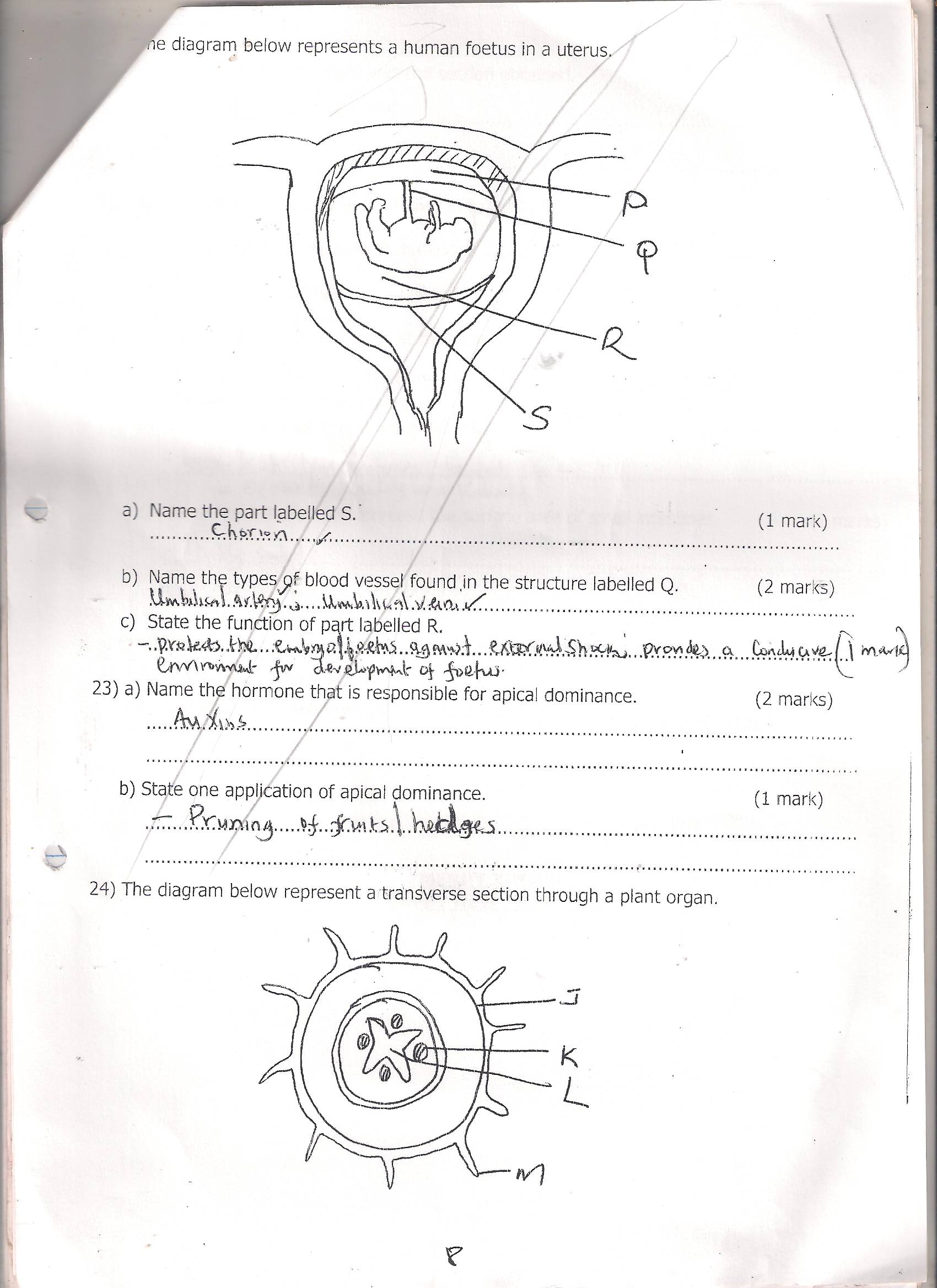
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(b) Give one reasons for loss of energy from one trophic level to another. 1mk

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1. The diagram below represents a transverse section through a plant organ.



1. From which plant organ was the section obtained. 1mk

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1. Give two reasons for your answer in (a) above. 2mks

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1. (a) The action of ptyalin stops at the stomach. Explain 1mk ………………………………………………………………………………………………………………………………………………………………………………………………………………

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(b) State a factor that denatures enzymes 1mk

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(c)Name the features that increase the surface area of small intestines. 2mks

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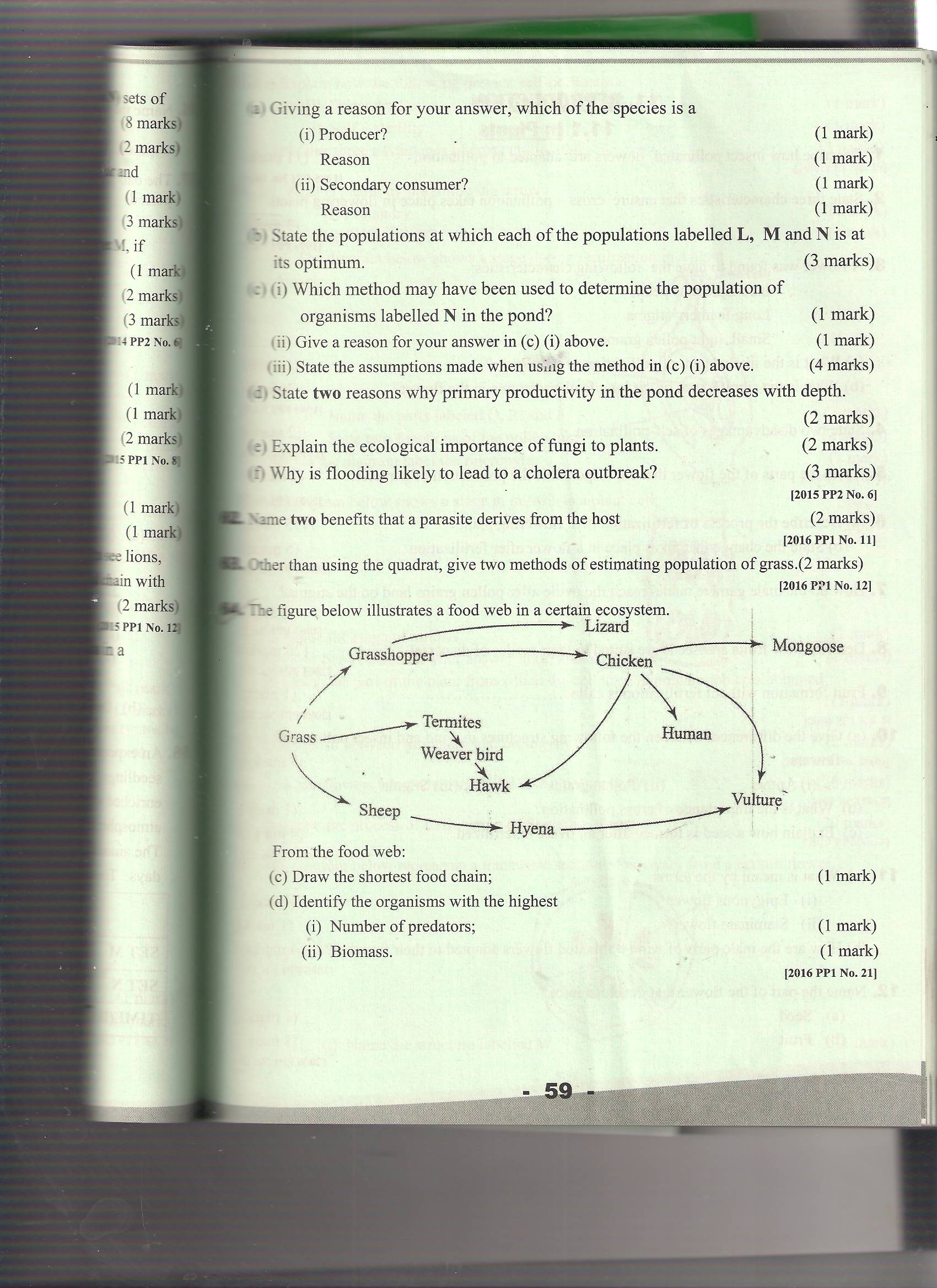
1. State one way by which HIV/AIDS is transmitted from mother to child. 1mk

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23 Give three importance of mitosis 3mks

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1. The figure below illustrates a food web in a certain ecosystem.



From the food web

1. Draw the shortest food chain 1mk

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Identify the organisms with the highest

1. Number of predators 1mk

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1. Biomass 1mk

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1. Explain why plants do not require specialized excretory organs. 4mks

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1. Name the three end products of anaerobic respiration in plants. 3mks

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