Question 1 **15 marks**

(a) Living things have characteristics in common.

Match each of the following characteristics of life to their descriptions in the table below.

~~Movement~~ ~~Respiration~~ ~~Sensitivity~~ ~~Growth~~ ~~Reproduction~~ ~~Excretion~~ ~~Nutrition~~

Description	Characteristic
The ability to react to changes in the environment	Sensitivity
The ability to adjust position	Movement
The increase in size of an organism	Growth
The release of waste products of chemical reactions in cells	Excretion
The intake of food	Nutrition
The release of energy from food in cells	Respiration
The ability to produce offspring	Reproduction

All of the characteristics of life are connected.

(b) Describe a connection between movement and nutrition.

Nutrition is the intake of food and food is turned into energy which is needed for movement

(c) Describe a connection between respiration and excretion.

After respiration, the only thing left is waste which leaves the organism through excretion

20

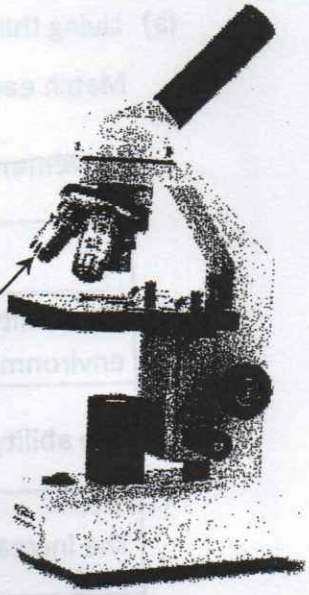
Question 2

15 marks

All biological organisms are made up of cells.

(a) Name the instrument shown in the picture on the right, which is used to examine cells.

Microscope



(b) Name the labelled part of the instrument, which makes the cells look bigger.

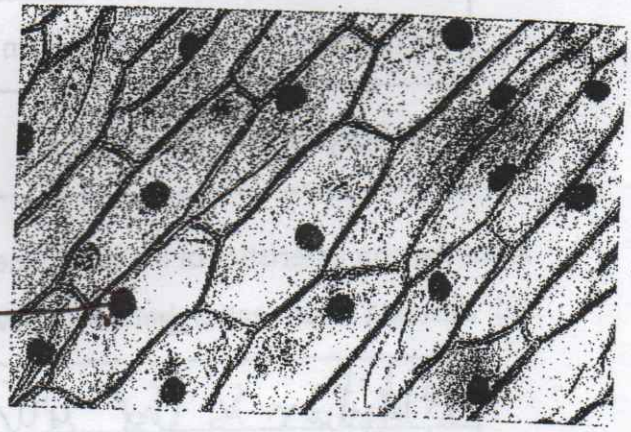
Objective lens

(c) The picture below shows cells from an onion, which are typical plant cells.

In the box, write the name of any one part of the cell.

Draw an arrow from the box to the part of the cell you have named.

Nucleus



(d) State the function of the part of the cell you have chosen.

The nucleus controls the cell

15

Question 3

15 marks

A group of students investigated how solubility in water changes with temperature for solid compounds **1**, **2** and **3**. The graph below shows the results obtained.

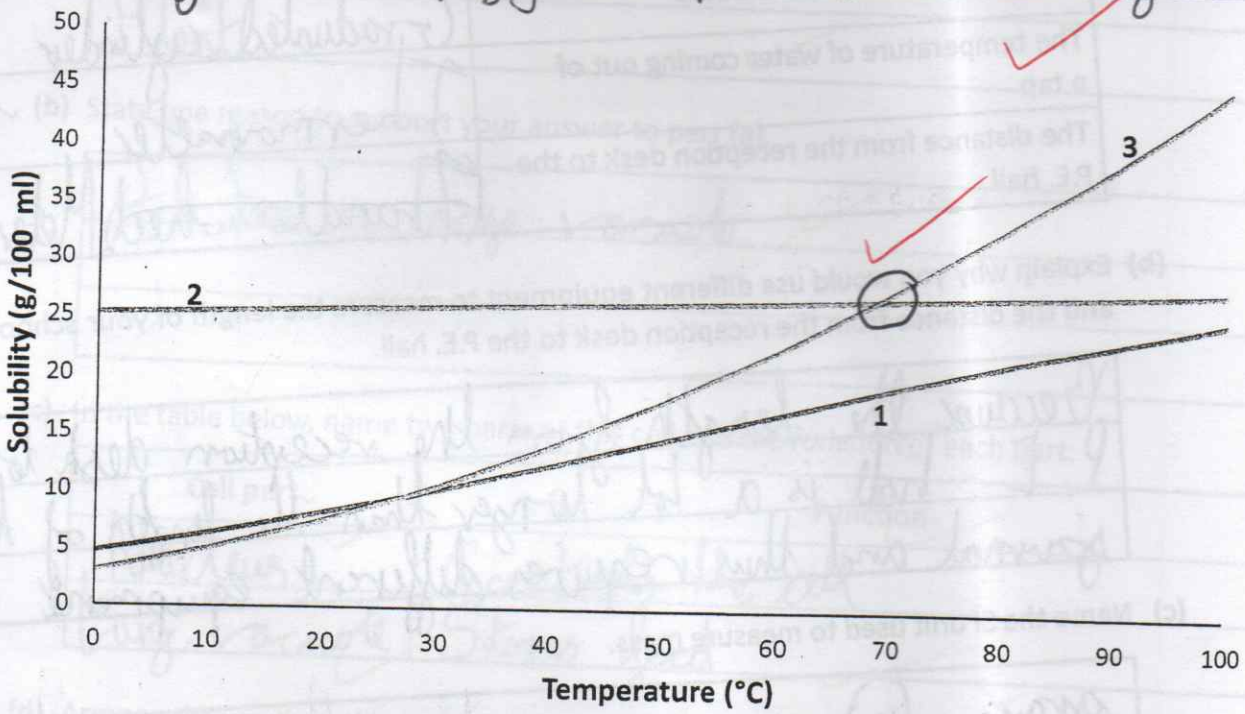
(a) Hot water was needed during this investigation.

Name an instrument used to heat water in the laboratory.

Bunsen burner

(b) Describe one safety precaution which should be taken when heating water in the laboratory.

Making sure anything electrical is either taken away or waterproffed to prevent an electrical fire



(c) The general trend for solids is that solubility increases with temperature.

Which compound shows the greatest increase in solubility from 0 °C to 100 °C?

3

(d) On the graph, circle the point where compound **2** has the same solubility as compound **3**.

(e) State one advantage of presenting scientific data using a graph.

It's easier to see where things (like up and correct) are the same and where they overlap

15

Question 5

(a) Name a suitable piece of equipment to measure each object in the table below. **15 marks**

Item to be measured	Suitable piece of equipment
The length of your school journal	Ruler ✓
How long it takes to do a lap of the downstairs corridor	Stopwatch ✓
The mass of your pencil case	Balance ✓
The volume of water in a bottle	Graduated cylinder ✓
The temperature of water coming out of a tap	Thermometer ✓
The distance from the reception desk to the P.E. hall	~~Trundle wheel~~ Meter stick ✓

(b) Explain why you would use different equipment to measure the length of your school journal and the distance from the reception desk to the P.E. hall.

Because the length from the reception desk to the P.E. hall is a lot longer than the length of the journal and thus requires different equipment ✓

(c) Name the SI unit used to measure mass.

grams (g) ✓

18

Question 6.

15 ma

(a) Does the diagram below show an animal cell or a plant cell?

Plant

(b) State one reason to support your answer to part **(a)**.

It has a large vacuole

(c) In the table below, name two parts of this cell and the function of each part.

Cell part	Function
Nucleus	Controls the cell
Large vacuole	Stores food

(d) Arrange the words in the correct order to describe how living organisms are organised. Start with the smallest.

~~Tissue~~ ~~Organism~~ ~~Cell~~ ~~System~~ ~~Organ~~

Cell, Tissue, Organ, System, Organism

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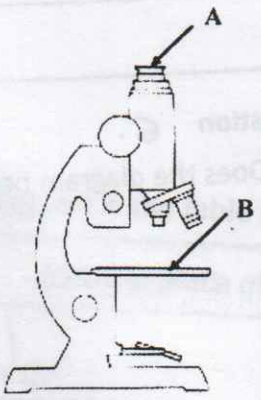
(*b*) The diagram shows a laboratory microscope.

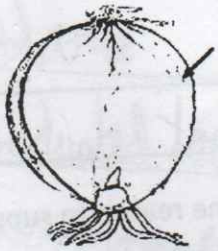


(*i*) What are the ***functions*** of parts labelled **A *and* B**? (6)

Function of A Magnification

Function of B Holding a slide

(*ii*) Onion epidermis is a tissue only one cell thick. It is used in school laboratories on microscope slides to investigate plant cell structure using a microscope.

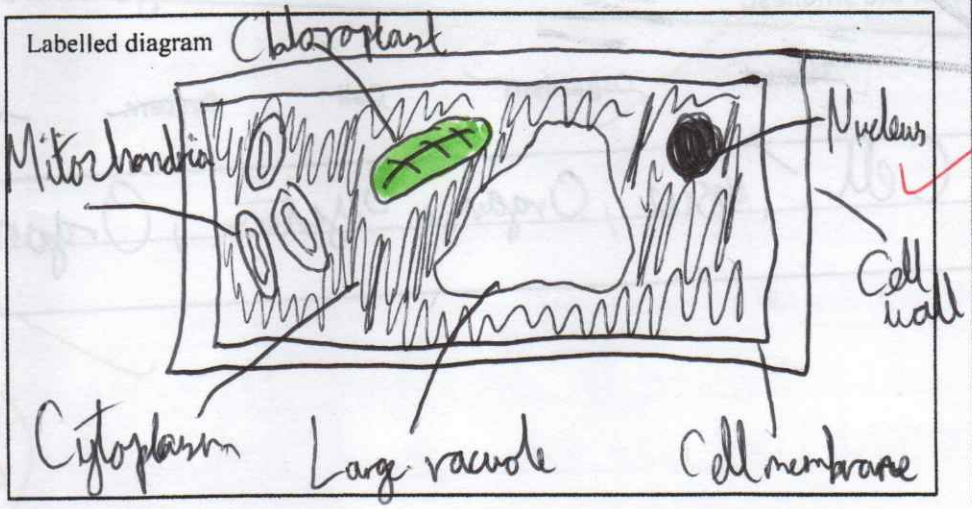


Describe how to ***prepare a microscope slide*** from a plant tissue. (6)

Get your plant tissue and put it on a glass slide. Add a drop of stain, possibly iodine, and. Apply a plastic coverslip at an angle so as to avoid air bubbles. Finally, place it on the stage of a microscope

(*iii*) Draw a ***labelled diagram***, in the box provided, of a ***plant cell***. (9)

Labelled diagram



For examiner use only

(1) | (2)

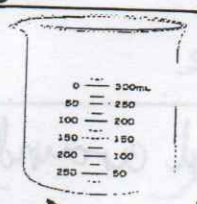
(9)

(21)

Qs. 7

Laboratory Equipment

Instructions: Name and give the use for each piece of equipment. The first one is done for you.

Diagram	Name	Use
	Beaker	For holding liquids
	Bunsen burner	For creating fire and for heating things
	Graduated cylinder	For measuring liquids
	Conical flask	Holds liquids
	Test tube	Holds liquids
	Opisometer	Measures curved lines

20

Qs 8.

Lab Safety Symbols

Instructions: Please complete the table below, the first one is done for you as an example.

Symbol	Meaning	Description
	Safety glasses	Eye protection must be worn
	Caution	Be careful around this object
	Flammable	This object can catch fire easily
	Toxic	You will die if you ingest this object and it may be harmful to touch
	Oxidising	Can catch fire easily if exposed to oxygen
	Biohazard	Dangerous for life and the environment
	Explosive	This object may explode under certain conditions

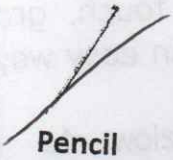
24

Qs · 9

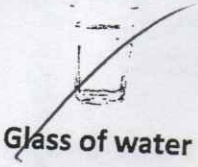
entists classify things as 'living' and 'non-living' based on seven characteristics of life. **15 marks**


Frog


Seaweed


Pencil


Goat


Glass of water


Fly


Car


Daisy


Fire


Rock


Tree


Chopped wood

Complete the table by placing the 'things' pictured above in the correct column.

Living things	Non-living things
Frog Daisy Seaweed Tree Goat Fly	Pencil Glass of water Car Chopped wood Fire Rock

State the term used by scientists to describe living things.

Made up of cells Organism

Choose one living thing above and explain how it demonstrates one of the characteristics of life.

Frogs can jump around and (they) that means they move

Choose one non-living thing above and identify one of the characteristics of life that it is missing.

Cars don't reproduce

Qs. 9(b)

The characteristics of living things

All living things must do the following: Move, reproduce and are sensitive e.g. to touch, grow, respire, excrete waste and take in nutrients (eat). An easy way to remember this is by MRS GREN.

Draw a line below to match the picture to the correct characteristic.

Movement

Reproduction

Sensitivity

Growth

Respiration

Excretion

Nutrition