



# Coimisiún na Scrúduithe Stáit State Examinations Commission

2007. S36

JUNIOR CERTIFICATE EXAMINATION, 2007

## SCIENCE - ORDINARY LEVEL

[N.B. Not for Science – Local Studies Candidates]

THURSDAY, 14 JUNE – MORNING, 9.30 to 12.00

### INSTRUCTIONS

1. Write your **examination number** in the box provided on this page.
2. Answer **SECTION A**.
3. Answer **ANY THREE SECTIONS** from **SECTIONS B, C, D, E**.
4. Answer **all questions** in the spaces provided. If you require extra space, there are pages provided at the back of this booklet.

Centre Number

Examination Number

For examiner use only

1. Total of end of page totals	
2. Aggregate total of all disallowed question(s)	
3. Total marks awarded (1 minus 2)	

For examiner use only

QUESTION MARK

Section A	Q.1	
Section B	Q.2	
	Q.3	
	Q.4	
Section C	Q.5	
	Q.6	
	Q.7	
Section D	Q.8	
	Q.9	
	Q.10	
Section E	Q.11	
	Q.12	
	Q.13	
	Q.14	
	Q.15	
	Q.16	

TOTAL

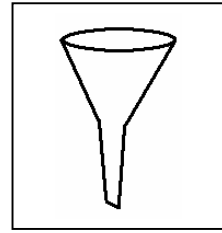
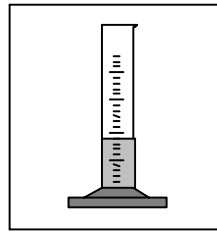
GRADE

**SECTION A – CORE (144 MARKS)**

Answer any 12 parts (a), (b), (c), etc. from this Section.

**Question 1**

(a) Name the following pieces of equipment.



NAME \_\_\_\_\_

(b) Complete the table below naming the **instrument** and **unit of measurement** in each case.

Action carried out by student	Instrument	Unit of measurement
Measuring the mass of a stone		
Measuring the length of a curved line		

(c) The diagram shows the inside of a **three-pin plug**.

Name a **material** used to make the cover of a three-pin plug.

\_\_\_\_\_

What **colour** is the covering (insulation) on the **neutral** wire?

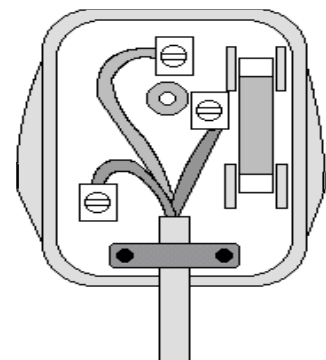
\_\_\_\_\_

Which wire, **neutral**, **live** or **earth** should the fuse be connected to?

\_\_\_\_\_

What is the purpose of a **fuse** in a plug?

\_\_\_\_\_



(d) **Complete** the following sentences by using the appropriate word in each case from the list on the right.

Heat travels from the **Sun to the Earth** by \_\_\_\_\_.

Heat travels through a **metal rod** by \_\_\_\_\_.

Heat travels through **liquids** by \_\_\_\_\_.

Boilers have **lagging jackets** for heat \_\_\_\_\_.

CONDUCTION

INSULATION

RADIATION

CONVECTION

(e) The diagram shows a flask of coloured water being heated gently.

What effect does this heat have on the **volume of water** in the flask? \_\_\_\_\_

**What happens** to show that the heat is having this effect?

\_\_\_\_\_

What happens to the water level in the tube as the flask **cools down**? \_\_\_\_\_

Name an **instrument** that works on this principle.

\_\_\_\_\_



(f) Choose **two** elements from the table on the right that are **metals**.

1 \_\_\_\_\_ 2 \_\_\_\_\_

Choose an element from the table that is found in **air**.

\_\_\_\_\_

Choose an element from the table that is found in large quantities in **fossil fuels**. \_\_\_\_\_

CARBON  
COPPER  
NITROGEN  
SILVER

(g) A **mixture** of soil and water was separated using the method shown in the diagram.

**Name** this method of separation. \_\_\_\_\_

**What** would you place in the piece of equipment labelled **A** to help separate the soil and water?

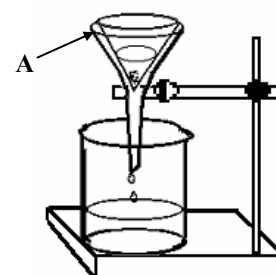
\_\_\_\_\_

Which **substance** will be found in the beaker at the end of the experiment?

\_\_\_\_\_

**Why** is this method not suitable to separate alcohol and water?

\_\_\_\_\_



(h) Complete the table below identifying each of the changes listed as a **physical change** or a **chemical change**.

**Burning of coal**      **Melting of ice**      **Dissolving salt in water**      **Frying an egg**

Physical Change	Chemical Change

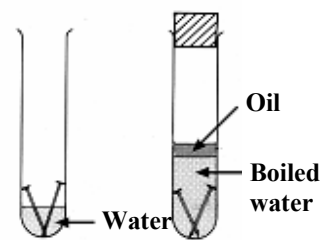
(i) The diagram shows an experiment that was set up to investigate the **rusting of iron**.

In which test-tube **A** or **B** would you expect the nails to rust?

Give a **reason** for your answer.

Why was a **layer of oil** placed on top of the boiled water?

Give one **method** of preventing the rusting of iron.



(j) The diagram shows the apparatus used to prepare and collect **carbon dioxide** gas in the laboratory. A solid **A** reacts with a liquid **B**.

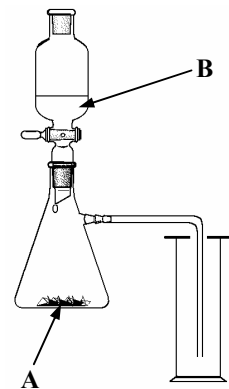
Name the solid labelled **A**. \_\_\_\_\_

Name the liquid **B**. \_\_\_\_\_

Give **one** everyday use of carbon dioxide gas.

What **colour** does limewater turn if carbon dioxide is bubbled

through it? \_\_\_\_\_



(k) In each case choose an **organ** or **part of the body** from the list on the right, which

produces urine \_\_\_\_\_

detects light \_\_\_\_\_

makes human sperm cells \_\_\_\_\_

supports the body \_\_\_\_\_

**TESTES**  
**KIDNEY**  
**SKELETON**  
**EYE**

(l) **Animals** and **plants** have great importance and can be a valuable resource in many areas.

**Name** one animal from a habitat you have studied. \_\_\_\_\_

**Name** one plant from a habitat you have studied. \_\_\_\_\_

Name one way in which animals can be of **importance** to humans.

\_\_\_\_\_

Name one way in which plants can be of **importance** to humans.

\_\_\_\_\_

(m) Food is made up of five food types (constituents). Complete the table below giving **one source** and **one function** for the food types listed. One row has been completed as an example.

FOOD TYPE	SOURCE	FUNCTION
<b>Carbohydrate</b>	Bread	Provides energy
<b>Fat</b>		
<b>Protein</b>		

(n) A green plant is placed in bright light for a number of hours.

**Name** the part of the plant that makes most **food**.

\_\_\_\_\_

Name the **process** by which plants make their own food.

\_\_\_\_\_

Name the **gas** released when plants make food.

\_\_\_\_\_

Name the **chemical** that is used in the laboratory to test if food (starch) has been made by a plant.

\_\_\_\_\_



(o) Micro-organisms such as **fungi**, **bacteria** and **viruses** can be both useful and harmful.

State one way in which **bacteria are useful** to people. \_\_\_\_\_

State one way in which **bacteria are harmful** to people. \_\_\_\_\_

Name one **virus** which is **harmful** to people. \_\_\_\_\_

Name one **disease caused by a fungus**. \_\_\_\_\_

SECTION B – PHYSICS (72 MARKS)

There are **THREE** questions in this Section. Answer any **TWO** of these questions.

Question 2

- (a) Friction is a **force** between two objects moving over each other. Give **two** other examples of **forces**.

1 \_\_\_\_\_ 2 \_\_\_\_\_ (6)

Name one way in which friction can be **reduced** between two objects.

\_\_\_\_\_ (3)

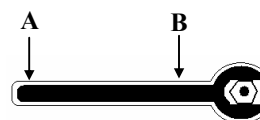
When a car is driven, friction can be **useful** or **not useful**. Give **one** example of when friction is **useful** when a car is driven. \_\_\_\_\_ (3)

- (b) The spanner in the diagram acts as a **lever** to apply a **turning force** to the nut.

Name one other example of a lever. \_\_\_\_\_ (3)

If the same force is used at **A** and **B**, which will give the greatest

**turning effect?** \_\_\_\_\_ (3)



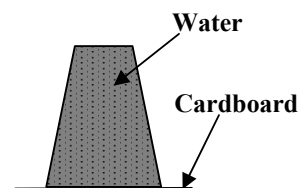
A glass was filled with water and a piece of cardboard placed on top. The glass of water was then carefully turned upside down as shown in the diagram.

Does the **water** pour out of the glass when it is turned upside down?

\_\_\_\_\_ (3)

What does this **experiment** show?

\_\_\_\_\_ (3)



- (c) Describe, with the aid of a labelled diagram, an experiment to **show that solids expand when heated**. (12)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Labelled diagram

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Question 3**

- (a) Choose the appropriate **word** from the list on the right to complete each of the sentences below.

The unit of **electrical current** is the \_\_\_\_\_ (3)

The ESB **supply** a.c. electricity at **230** \_\_\_\_\_ (3)

The unit of **power** you would find stamped on a **light bulb** is the \_\_\_\_\_ (3)

The unit of electricity used by the ESB for **costing** is the \_\_\_\_\_ (3)

<p><b>KILOWATT-HOUR</b>  <b>VOLTS</b>  <b>AMPERE</b>  <b>WATT</b></p>
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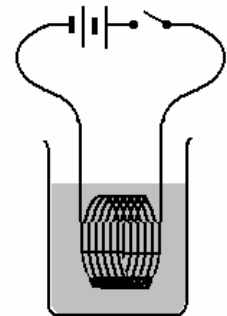
- (b) The diagram shows an electric circuit. When the switch is closed an **electric current passes through the coil of wire** placed in a beaker of water.

What **effect** does the electric current passing through the coil have on the water? \_\_\_\_\_ (3)

What **instrument** could be used to show this effect?  
 \_\_\_\_\_ (3)

A 3 kW **electric fire** is switched on for four hours.  
 How many **units** (kWh) does it use? \_\_\_\_\_ (3)

If each unit costs 10 cent, find the **cost** of the electricity used. \_\_\_\_\_ **cent** (3)



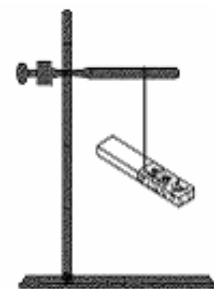
- (c) A **bar magnet** was hung freely as shown in the diagram.

What happens if the **north pole** of another magnet is brought close to the **north pole** of the hanging magnet?  
 \_\_\_\_\_ (3)

Why is a **wooden stand** used?  
 \_\_\_\_\_ (3)

Name an **instrument** that depends on a suspended magnet aligning with (lining up with) the magnetic field of the Earth?  
 \_\_\_\_\_ (3)

Give one other **everyday use** of a magnet.  
 \_\_\_\_\_ (3)



**Question 4**

- (a) In each case match the appropriate **word** from the list on the right with each of the phrases below.

**Energy** is the ability to do \_\_\_\_\_ (3)

A **renewable** energy source \_\_\_\_\_ (3)

A **non-renewable** energy source \_\_\_\_\_ (3)

Energy from the **nuclei** of atoms \_\_\_\_\_ (3)

- |                |
|----------------|
| <b>SOLAR</b>   |
| <b>COAL</b>    |
| <b>NUCLEAR</b> |
| <b>WORK</b>    |

- (b) The diagram shows a beam of white light being **dispersed** through a piece of equipment **X**, forming a **band of colours** on a screen.

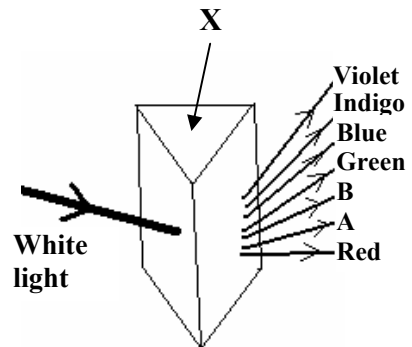
What **name** is given to the band of colours formed due to the dispersion of white light?

\_\_\_\_\_ (3)

Name the piece of equipment **X**. \_\_\_\_\_ (3)

Name the **colour A**. \_\_\_\_\_ (3)

Name the **colour B**. \_\_\_\_\_ (3)



- (c) **Diagram A** shows a **ray of light** hitting a surface and bouncing back.

What **word** describes the bouncing back of the ray of light?

\_\_\_\_\_ (3)

The equipment shown in **diagram B** is used in an experiment.

What would the person see when the three cards are

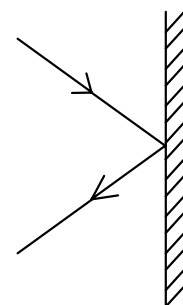
set up **as shown**? \_\_\_\_\_ (3)

What would the person see if the **middle card** were

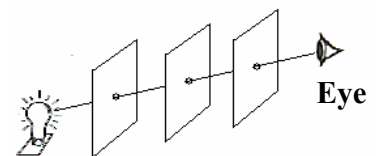
moved slightly? \_\_\_\_\_ (3)

What does this experiment tell us about **light**?

\_\_\_\_\_ (3)



**Diagram A**



**Diagram B**



**SECTION C – CHEMISTRY (72 MARKS)**

There are **THREE** questions in this Section. Answer any **TWO** of these questions.

**Question 5**

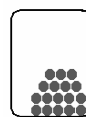
- (a) State if each of the substances below is a **solid**, **liquid** or **gas** at room temperature and atmospheric pressure.

Helium \_\_\_\_\_ (3)

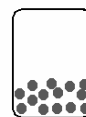
Sulphur \_\_\_\_\_ (3)

Alcohol \_\_\_\_\_ (3)

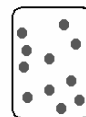
Mercury \_\_\_\_\_ (3)



**Solid**



**Liquid**



**Gas**

- (b) Water is a **compound** that is composed of two elements.

**Name** the two elements that make up water.

1 \_\_\_\_\_ 2 \_\_\_\_\_ (6)

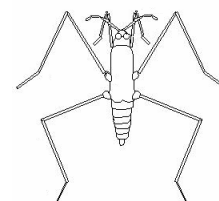
At what **temperature** does water boil?

\_\_\_\_\_ °C (3)

The diagram shows a small insect that can walk on the surface of water.

What **property** of water allows the insect to walk on its surface?

\_\_\_\_\_ (3)



**Pond skater**

- (c) There are **two** types of water hardness, **temporary** and **permanent**.

Which type of hardness can be removed by **boiling**? \_\_\_\_\_ (3)

Give **one advantage** of hard water.

\_\_\_\_\_ (3)

Give **one disadvantage** of hard water. \_\_\_\_\_ (3)

Two 50 cm<sup>3</sup> water samples **A** and **B** were tested with a solution of soap to compare their hardness. The volume of **soap solution** needed to form a lather was measured and recorded in the table below.

Water Sample	Soap solution (cm <sup>3</sup> )
<b>A</b>	4
<b>B</b>	16



Which water sample **A** or **B** has the most hardness? \_\_\_\_\_ (3)

**Question 6**

(a) All atoms are composed of tiny particles. Match each of the **particles** from the list on the right with an appropriate statement below. (**Note:** one of the words is used twice)

Located **outside** the nucleus. \_\_\_\_\_ (3)

Located in the nucleus but have **no charge**. \_\_\_\_\_ (3)

Located in the nucleus but have a **charge**. \_\_\_\_\_ (3)

These particles are lost or gained when atoms become **ions**. \_\_\_\_\_ (3)

- |                  |
|------------------|
| <b>PROTONS</b>   |
| <b>ELECTRONS</b> |
| <b>NEUTRONS</b>  |

(b) **Litmus indicator** is used to test for acids and bases.

What is the colour of litmus in an **acid**? \_\_\_\_\_ (3)

What is the colour of litmus in a **base**? \_\_\_\_\_ (3)

**Name** an indicator that could be used to measure the **pH** of a solution in the laboratory.

\_\_\_\_\_ (3)

If the pH of a sodium hydroxide solution was measured, would it be **lower than 7**,

**equal to 7** or **higher than 7**? \_\_\_\_\_ (3)

(c) Describe, with the aid of a labelled diagram, a laboratory experiment to **separate salt from a solution of salt and water**. (12)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Labelled diagram

**Question 7**

(a) A **fire triangle** is used to show the three requirements (things) that a fire needs in order to burn.

Name the **two** requirements (things needed) represented by **A** and **B**.

1 \_\_\_\_\_ 2 \_\_\_\_\_ (6)



Name the type of fire extinguisher that can be used to put out **electrical** fires.

\_\_\_\_\_ (3)

Give one **safety precaution** you could take in the home to avoid the risk of fire.

\_\_\_\_\_ (3)

(b) **Acid rain** has a pH of less than 5.

**Gases** released from the burning of fossil fuels form acid rain.

Name **one** of these gases.

\_\_\_\_\_ (3)

Name a **fossil fuel**, the burning of which, gives rise to acid rain.

\_\_\_\_\_ (3)

Acid rain causes pollution. Give **two** examples of the damage caused to the environment by acid rain.

1 \_\_\_\_\_ 2 \_\_\_\_\_ (6)

(c) The diagram shows a test tube filled with ice that is left to stand on a bench in the laboratory for 30 minutes. **Water** condenses onto the outside of the test tube.

Name a substance that you could use to show that the liquid formed is water.

\_\_\_\_\_ (3)

State the **colour change** observed when testing the water.

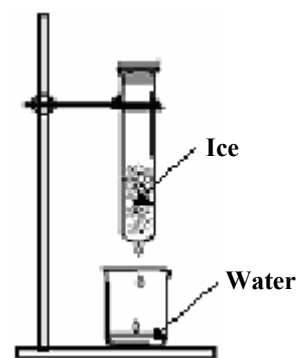
\_\_\_\_\_ (3)

What **information** does this experiment give us about air?

\_\_\_\_\_ (3)

**Oxygen** gas is found in air. Give one **use** for oxygen gas.

\_\_\_\_\_ (3)



**SECTION D – BIOLOGY (72 MARKS)**

There are **THREE** questions in this Section. Answer any **TWO** of these questions.

**Question 8**

(a) The diagram **A** shows the **structure** of a tooth.

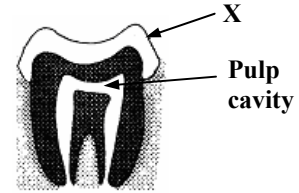
Name part **X**. \_\_\_\_\_ (3)

Name the **mineral** needed for healthy teeth.  
 \_\_\_\_\_ (3)

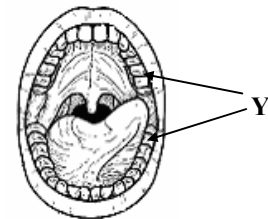
The diagram **B** shows a set of human **teeth**.

**Name** the type of teeth labelled **Y**.  
 \_\_\_\_\_ (3)

Give one **function** of teeth **Y**.  
 \_\_\_\_\_ (3)



**Diagram A**



**Diagram B**

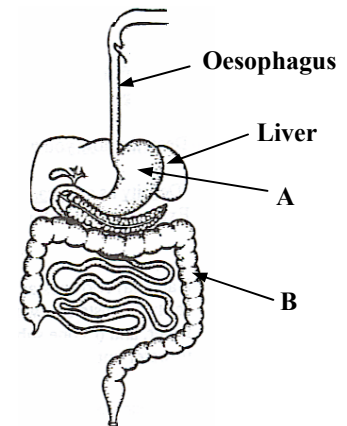
(b) The diagram shows the human **digestive system**.

Name part **A** \_\_\_\_\_ (3)

Name part **B** \_\_\_\_\_ (3)

What is the **function** of **A**?  
 \_\_\_\_\_ (3)

Name one type of **chemical** that breaks down food in the digestive system.  
 \_\_\_\_\_ (3)



(c) The diagram shows the human **breathing system**.

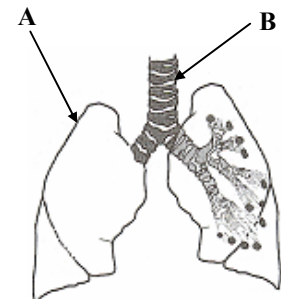
Name part **A** \_\_\_\_\_ (3)

Name part **B** \_\_\_\_\_ (3)

Which part of the skeleton **protects** our breathing system?

\_\_\_\_\_ (3)

What do the **rings of cartilage** do?  
 \_\_\_\_\_ (3)



**Question 9**

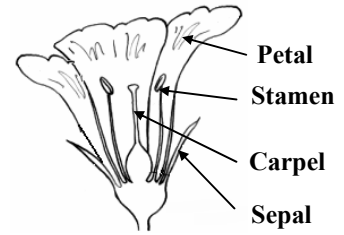
(a) The diagram shows a flower, the reproductive part of the plant.

The \_\_\_\_\_ **protects** the flower before opening. (3)

The **ovules** are produced in the \_\_\_\_\_. (3)

The \_\_\_\_\_ releases **pollen**. (3)

The part of the flower that **attracts** insects is the \_\_\_\_\_. (3)



(b) **Phototropism** is a growth response made by plants.  
The plant in the flowerpot on the right was placed near a window and grew towards the window as shown.

Why did the plant grow **towards** the window?

\_\_\_\_\_ (3)

How does this **growth response** help plants?

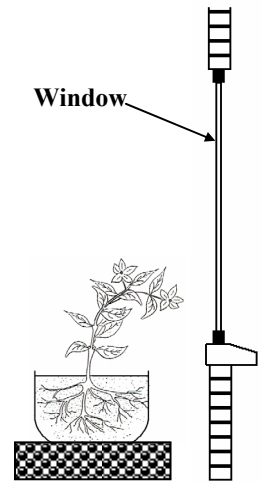
\_\_\_\_\_ (3)

Which **part** of the plant makes the growth response?

\_\_\_\_\_ (3)

A seedling is formed when a seed **germinates**. Name one

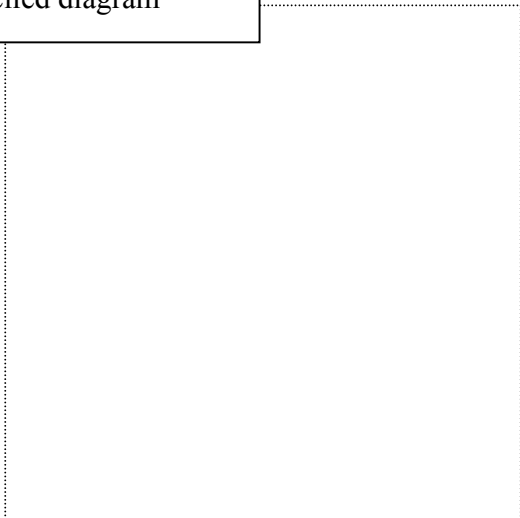
**condition** (thing) necessary for all seeds to germinate. \_\_\_\_\_ (3)



(c) Describe, with the aid of a labelled diagram, an experiment to show **the flow of water upward through a plant**. (12)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Labelled diagram



**Question 10**

- (a) **Blood** is found in the **circulatory system**. In each case match the appropriate **term** from the list on the right with each of the following.

**Function** of blood in the body \_\_\_\_\_ (3)

**Pumps** blood around the body \_\_\_\_\_ (3)

The **liquid** part of blood \_\_\_\_\_ (3)

Blood **flows** around the body in these \_\_\_\_\_ (3)

- |   |
|---|
| <p><b>HEART</b></p> <p><b>BLOOD VESSELS</b></p> <p><b>TRANSPORT of MATERIALS</b></p> <p><b>PLASMA</b></p> |
|---|

- (b) The **heart** forms part of the circulatory system. A person's **pulse** is often taken to measure **heartbeat**.

Name a good **place** in the body to find a pulse. \_\_\_\_\_ (3)

Name one factor that causes heartbeat to **increase**.

\_\_\_\_\_ (3)

How does **exercise** help prevent heart disease?

\_\_\_\_\_ (3)

Give **one** example, other than exercise, of how a person can help keep his/her heart **healthy**.

\_\_\_\_\_ (3)

- (c) The diagram shows the **female reproductive system**.

Name part **A** \_\_\_\_\_ (3)

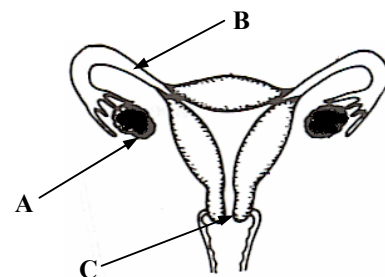
Name part **B** \_\_\_\_\_ (3)

Give one **function** of part **A**.

\_\_\_\_\_ (3)

In which part **A**, **B** or **C**, does fertilisation usually take place?

\_\_\_\_\_ (3)



**SECTION E – APPLIED SCIENCE (72 MARKS)**

**There are SIX questions in this Section. Answer any TWO of these questions.**

**Question 11 - Earth Science**

(a) In each case choose the appropriate **number** from the list on the right to complete each of the sentences below.

The **Earth rotates** on its axis once every \_\_\_\_\_ hours. (3)

The time taken for the **moon** to orbit the **Earth** is \_\_\_\_\_ days. (3)

The number of days in a **leap year** is \_\_\_\_\_ days. (3)

The time taken for the **Earth** to orbit the **Sun** is \_\_\_\_\_ days. (3)

- |      |
|------|
| 24   |
| 365¼ |
| 28   |
| 366  |

(b) Various instruments are used in **weather recording** stations.

**Name** the instrument shown in the diagram. \_\_\_\_\_ (3)



Give **one use** for this instrument. \_\_\_\_\_ (3)

Name an instrument that is used to measure **rainfall**. \_\_\_\_\_ (3)

A **barometer** is an instrument used to measure \_\_\_\_\_. (3)

(c) Describe, with the aid of a labelled diagram, an experiment to show **the effect of temperature on the rate of evaporation of water**. (12)

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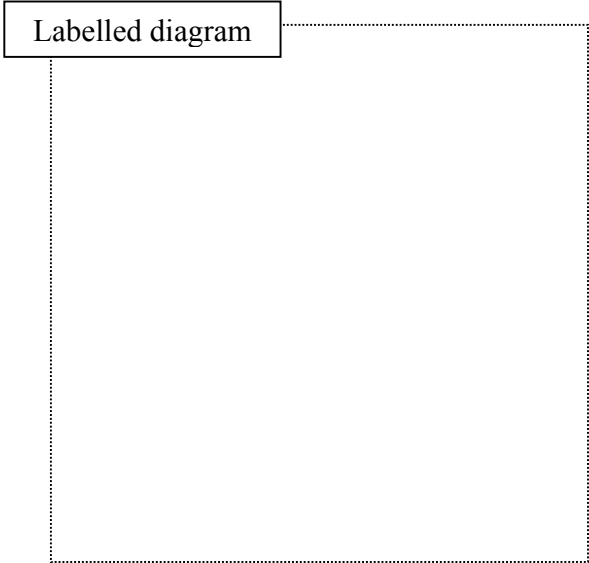
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**Question 12 - Horticulture**

(a) **Soil** is commonly used in the growing of **plants** in horticulture.

Name **two** things that a soil provides for a plant.

1 \_\_\_\_\_ 2 \_\_\_\_\_ (6)

Give **two** advantages of having **earthworms** in a soil.

1 \_\_\_\_\_ 2 \_\_\_\_\_ (6)

(b) Plants can be **propagated** by taking **cuttings**.

Name one **woody** plant from which cuttings can be taken. \_\_\_\_\_ (3)

Name one **non-woody** plant from which cuttings can be taken. \_\_\_\_\_ (3)

Name one action which helps to **improve root formation** of cuttings.

\_\_\_\_\_ (3)

Give one factor that is important in the **growing on** of cuttings to form a new plant.

\_\_\_\_\_ (3)

(c) Describe, with the aid of a labelled diagram, an experiment to show **how you would measure the water content of a soil or compost**. (12)

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Labelled diagram





**A - PLASTICS**

- (i) Give **one** use for **polythene** in the home. \_\_\_\_\_ (3)
- (ii) Most plastics are **made** from \_\_\_\_\_. (3)
- (iii) Describe, with the aid of a labelled diagram, an experiment to **compare the heat insulating properties of two plastics**. (12)

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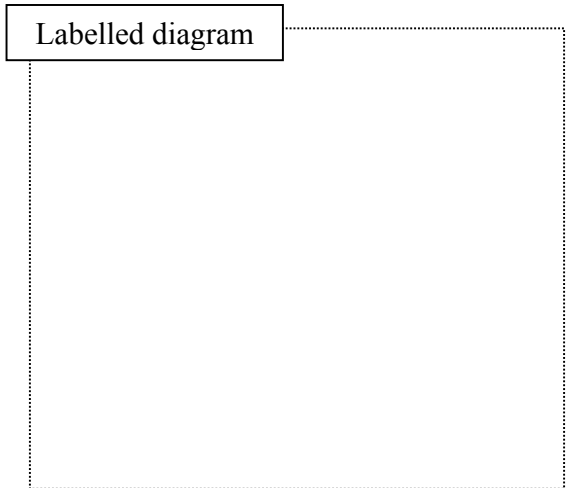
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**B - TEXTILES**

- (i) Choose the correct **term** from the list on the right to complete each of the sentences below.

**Yarn** is **made** from fibres by \_\_\_\_\_. (3)

**Fabrics** can be **made** from yarn by \_\_\_\_\_. (3)

**WEAVING**  
**SPINNING**

- (ii) Describe, with the aid of a labelled diagram, an experiment to **compare the absorbency of two textiles**. (12)

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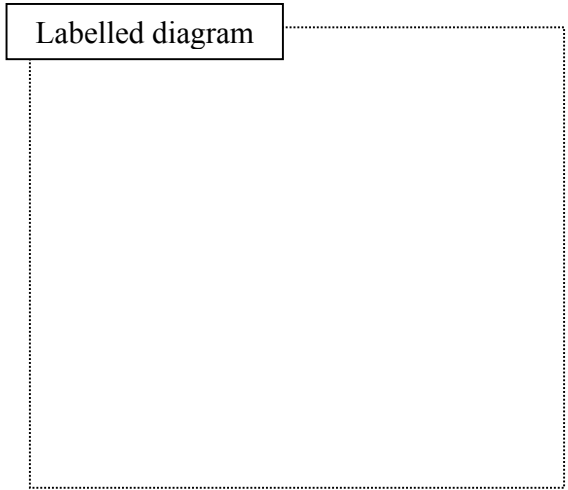
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**C - METALS**

- (i) Name **one** metal that is **mined in Ireland**. \_\_\_\_\_ (3)
- (ii) Name **one** metal that is found as an **ore**. \_\_\_\_\_ (3)
- (iii) Describe, with the aid of a labelled diagram, an experiment to **compare the hardness of two metals**. (12)

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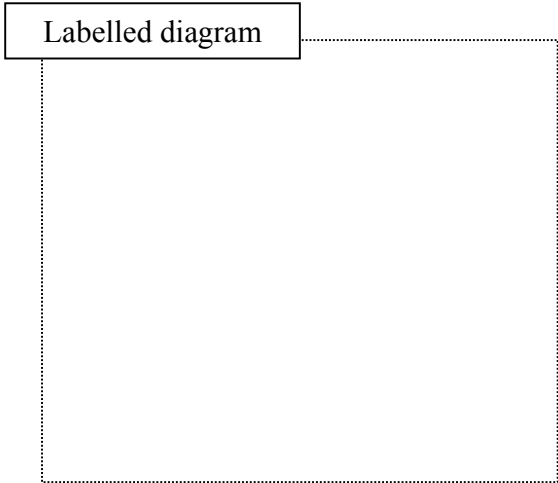
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**D - TIMBER**

- (i) Name a **hardwood** tree grown in Ireland. \_\_\_\_\_ (3)
- (ii) Give one **use** for the hardwood you have named. \_\_\_\_\_ (3)
- (iii) Describe, with the aid of a labelled diagram, an experiment to **compare the bending strength of two different timbers**. (12)

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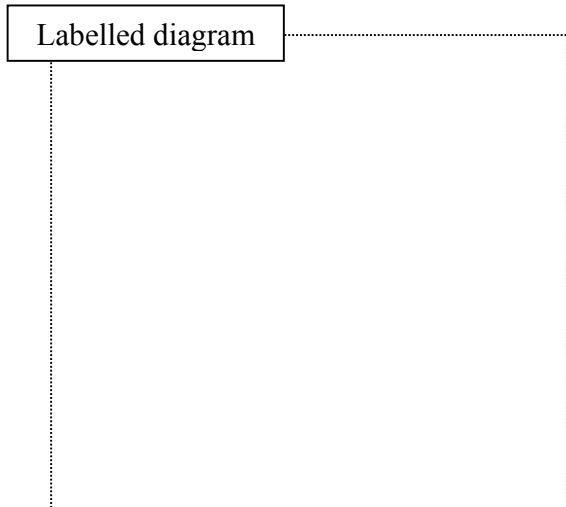
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**Question 14 - Food**

(a) In each case, match the appropriate **food** from the list on the right with a method of preservation below.

Dehydration \_\_\_\_\_ (3)

Pasteurisation \_\_\_\_\_ (3)

Salting \_\_\_\_\_ (3)

Smoking \_\_\_\_\_ (3)

**MEAT**

**MILK**

**COFFEE**

**FISH**

(b) A **balanced diet** is important for a healthy lifestyle.

Why are **vitamins and minerals** important as part of a balanced diet?

\_\_\_\_\_ (3)

Why is **fibre** important in a balanced diet? \_\_\_\_\_ (3)

When testing for the presence of a particular food type a **translucent grease spot** is formed.

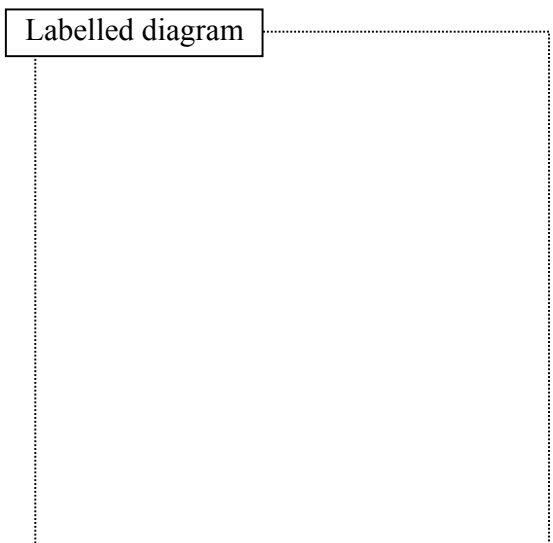
**Name** this food type. \_\_\_\_\_ (3)

Name the **chemical** used to test for a **reducing sugar** (e.g. glucose) in a sample of food.

\_\_\_\_\_ (3)

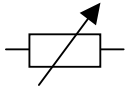
(c) Describe, with the aid of a labelled diagram, a laboratory experiment to **make butter**. (12)

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**Question 15 - Electronics**

(a) In each case, match an **electrical component** from the list on the right with each of the following symbols.



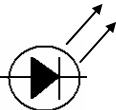
\_\_\_\_\_ (3)



\_\_\_\_\_ (3)



\_\_\_\_\_ (3)



\_\_\_\_\_ (3)

**VARIABLE RESISTOR**

**LED**

**AMMETER**

**DIODE**

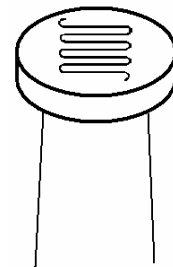
(b) The diagram shows an **LDR**.

An LDR is a Light \_\_\_\_\_ Resistor. (3)

The resistance of the LDR **increases** in \_\_\_\_\_ light. (3)

The resistance of the LDR **decreases** in \_\_\_\_\_ light. (3)

Give one **everyday use** of an LDR. \_\_\_\_\_ (3)



(c) Draw a circuit diagram to show **how the brightness of a bulb can be controlled by a variable resistor**. (12)

Circuit diagram

**Question 16 - Energy Conversions**

(a) In each case, match the appropriate **energy change** from the list in the box on the right with an energy change that occurs in each of the following situations.

- ELECTRICAL TO HEAT
- KINETIC TO SOUND
- CHEMICAL TO HEAT
- CHEMICAL TO LIGHT

A candle **burning** \_\_\_\_\_ (3)

**Plucking** a guitar string \_\_\_\_\_ (3)

A **battery** torchlight **shining** \_\_\_\_\_ (3)

An **electric** kettle **boiling** water \_\_\_\_\_ (3)

(b) The diagram shows the parts of a simple **electromagnet**.

What **metal** is used to make the core?

\_\_\_\_\_ (3)

What happens to the **nail** when the switch is closed?

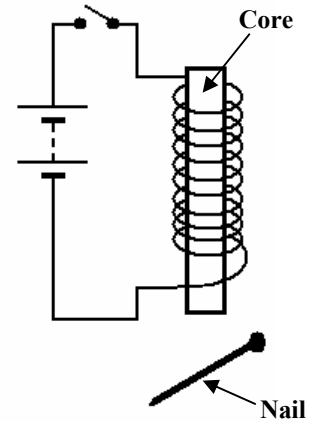
\_\_\_\_\_ (3)

State one **energy change** that takes place in the circuit when the switch is closed.

\_\_\_\_\_ (3)

Give **one** everyday use of an electromagnet.

\_\_\_\_\_ (3)



(c) Describe, with the aid of a labelled diagram, a laboratory experiment to **show that energy can be released from food**, e.g. peanuts. (12)

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Labelled diagram

