

**WARNING**  
You must return this paper with your answer-book, otherwise marks will be lost.



# Coimisiún na Scrúduithe Stáit State Examinations Commission

---

**JUNIOR CERTIFICATE EXAMINATION, 2005**

---

**SCIENCE – HIGHER LEVEL**  
(N.B. Not for Science – Local Studies Candidates)

---

**THURSDAY, 16 JUNE - MORNING, 9.30 to 12.00**

**SECTION A (144 marks) TO BE ANSWERED BY ALL CANDIDATES.**

(See separate sheet for Sections B, C, D and E.)

---

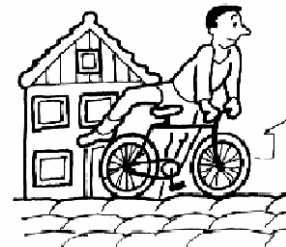
Answer *each* of the questions 1, 2 and 3. There are **TEN** parts in each question. Answer any **EIGHT** parts. All questions carry equal marks. Answer the questions in the spaces provided. Return this Section of the examination paper. Enclose it in the answer-book you use in answering the other Sections.

**1.** Answer **eight** of the following, (a), (b), (c), etc.

- (a) A boy cycles to school each day. His home is 6 km from his school and it takes him on average 30 minutes to get there. Calculate the boy's average speed in km/h.

---

---



[Turn over

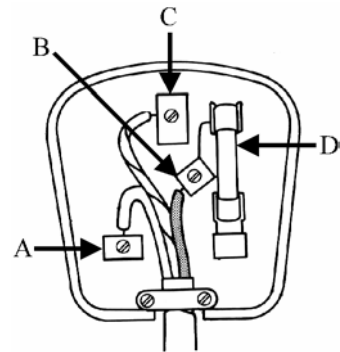
(b) Name **one** *renewable* energy source that can be used in Ireland.

Renewable energy source \_\_\_\_\_

Why is this source considered to be *renewable*?

\_\_\_\_\_

(c) The diagram shows a 13 A plug with the back cover removed. Identify one part from **A, B, C, D** that is there for *safety* and state how it works.



Part \_\_\_\_\_

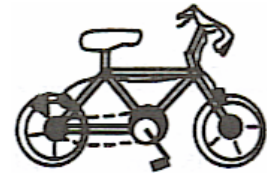
How? \_\_\_\_\_

\_\_\_\_\_

(d) Give **one** way in which *friction* can *help* a cyclist and **one** way in which it can *hinder* a cyclist.

Help \_\_\_\_\_

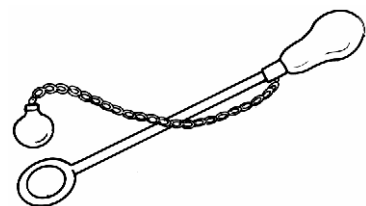
Hinder \_\_\_\_\_



(e) Name the piece of laboratory equipment shown in the diagram and state what it can be used to demonstrate.

Name \_\_\_\_\_

Use \_\_\_\_\_



(f) Pressure is \_\_\_\_\_ per unit area.

The unit of pressure is the \_\_\_\_\_.

(g) Define the *frequency* of a wave.

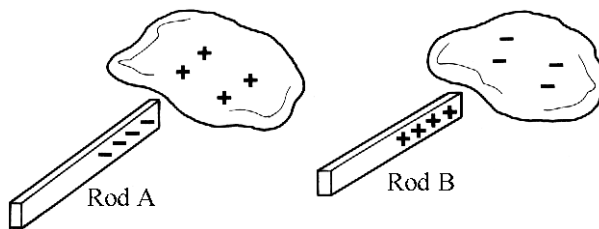
\_\_\_\_\_

(h) Distinguish between *heat* and *temperature*.

Heat \_\_\_\_\_

Temperature \_\_\_\_\_

(i)



Rod **A** is made of polythene and rod **B** is made of perspex. Both rods have been rubbed with identical cloths. Explain how **A** becomes *negatively* charged while **B** becomes *positively* charged.

Rod **A** \_\_\_\_\_

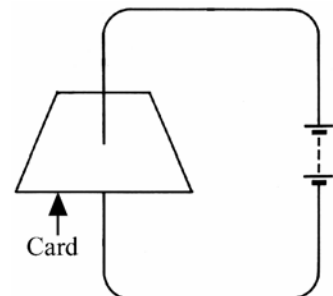
\_\_\_\_\_

Rod **B** \_\_\_\_\_

\_\_\_\_\_

(j) The diagram shows a current carrying wire passing through a card.

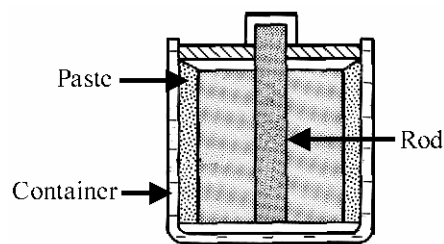
Show a *magnetic field line* on the card in the diagram with direction clearly indicated.



(8 × 6)

2. Answer **eight** of the following, (a), (b), (c), etc.

- (a) The diagram shows a dry cell.  
Name the *element* used to make the rod.  
The container is an electrode of the cell  
and is in contact with the paste.  
Name the *element* used to make the container.



Rod \_\_\_\_\_ Container \_\_\_\_\_

- (b) Name **one** type of fire extinguisher and state how it can put out a fire.

Name \_\_\_\_\_

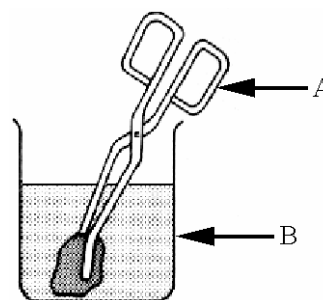
How? \_\_\_\_\_

\_\_\_\_\_

- (c) Name the **two** items of laboratory equipment  
labelled **A** and **B** in the diagram.

**A** \_\_\_\_\_

**B** \_\_\_\_\_



- (d) Why is sodium metal stored in oil?

\_\_\_\_\_

Name another metal that is in the *same group* as sodium in the periodic table.

Name \_\_\_\_\_

- (e) Identify the hazard symbols shown in the diagram.

Symbol **A** \_\_\_\_\_

Symbol **B** \_\_\_\_\_



**A**



**B**

(f) Name an *acid* and a *base* that could be found in the home.

Name of acid \_\_\_\_\_

Name of base \_\_\_\_\_

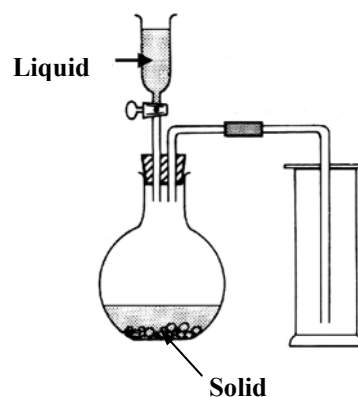
(g) The apparatus shown was used to prepare carbon dioxide gas.

Name a suitable *liquid* for this preparation.

Liquid \_\_\_\_\_

Give the *formula* of a solid that could react with the liquid that you have named to produce CO<sub>2</sub>.

Formula \_\_\_\_\_



(h) What is a *catalyst*?

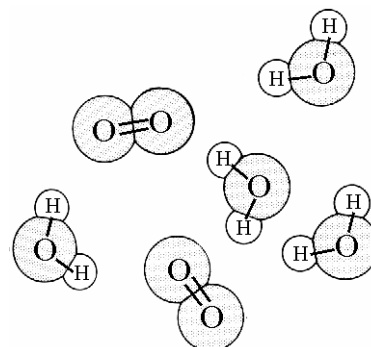
\_\_\_\_\_  
\_\_\_\_\_

(i) The diagram shows two kinds of molecules found in air. What *type of bond* holds the atoms together in these molecules?

Type of bond \_\_\_\_\_

Name **one other molecule**, excluding CO<sub>2</sub> and those shown in the diagram, that is found in unpolluted air.

Name \_\_\_\_\_



(j) Give **one** way in which the rusting of iron can be prevented and say how the method that you have given works.

One way \_\_\_\_\_

How it works? \_\_\_\_\_

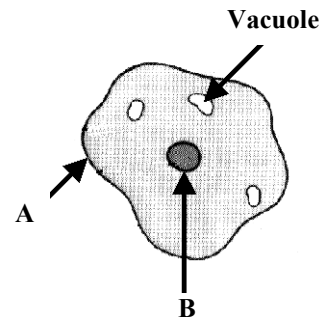
(8 × 6)

3. Answer **eight** of the following, (a), (b), (c), etc.

(a) The diagram shows an animal cell. Name parts **A** and **B**.

Part **A** \_\_\_\_\_

Part **B** \_\_\_\_\_



(b) Give **two environmental** factors that increase the *rate* of transpiration in plants.

Factor one \_\_\_\_\_

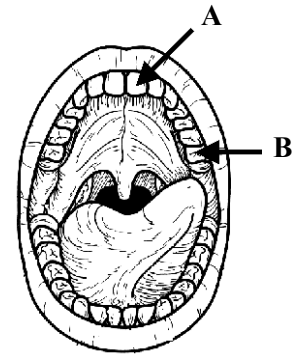
Factor two \_\_\_\_\_

(c) The diagram shows the human mouth.  
Name tooth type **A**.

**Name** of tooth type **A** \_\_\_\_\_

Give the *function* of tooth type **B**.

**Function** of tooth type **B** \_\_\_\_\_



(d) What is the principal *function* of (i) red blood cells (ii) white blood cells in our bodies?

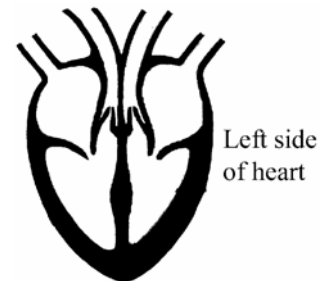
**Function** of red blood cells \_\_\_\_\_

**Function** of white blood cells \_\_\_\_\_

(e) The diagram shows the chambers, valves, arteries and veins of the human heart.  
Label, using **arrows** and **names**:

(i) the vein that returns oxygenated blood from the lungs,

(ii) the chamber that pumps oxygenated blood into the body.



- (f) Gaseous exchange occurs in the lungs of many animals.  
Name **two** other *systems of gaseous exchange* found in animals.

System one \_\_\_\_\_

System two \_\_\_\_\_

- (g) Complete the simple *food chain* below, with a suitable named producer and a suitable named carnivore.

Producer \_\_\_\_\_

Herbivore     **Rabbit**    

Carnivore \_\_\_\_\_



- (h) Name **two** *useful plant products* excluding food and oxygen.

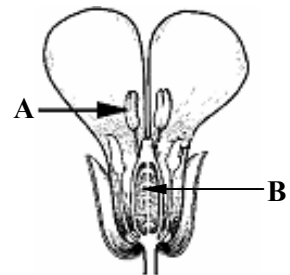
Product one \_\_\_\_\_

Product two \_\_\_\_\_

- (i) The diagram shows a section through a flower.  
Give the *function* of **A** and *name* **B**.

Function of **A** \_\_\_\_\_

Name of **B** \_\_\_\_\_



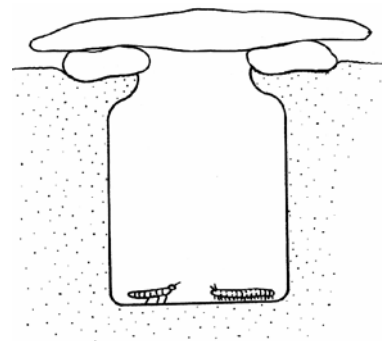
- (j) Animals can be collected, from a habitat, using the simple set-up shown in the diagram.

How can animals be enticed into the trap?

How? \_\_\_\_\_

Name a second device that can be used to collect animals on a field trip.

Name \_\_\_\_\_



**(8 × 6)**

Blank Page