

**AN ROINN OIDEACHAIS**  
**INTERMEDIATE CERTIFICATE EXAMINATION 1990**

M.53(b)

Examination Number

**I.S.C.I.P. EXAMINATION PAPER**

(for candidates who have followed the Integrated Science Curriculum Innovation Project)

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**A**

**SCIENCE - SYLLABUS A**

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**TUESDAY 12 JUNE - MORNING, 9.30 to 12.00**

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Section A is the same for all candidates and is on a separate sheet. It should be returned with Section B.

**Section B**

**Answer 4 questions.**

over

1 A

Tick the correct answer.

The wavelength of a water wave is 4 m and its frequency is 8 Hz. The velocity of the wave is:

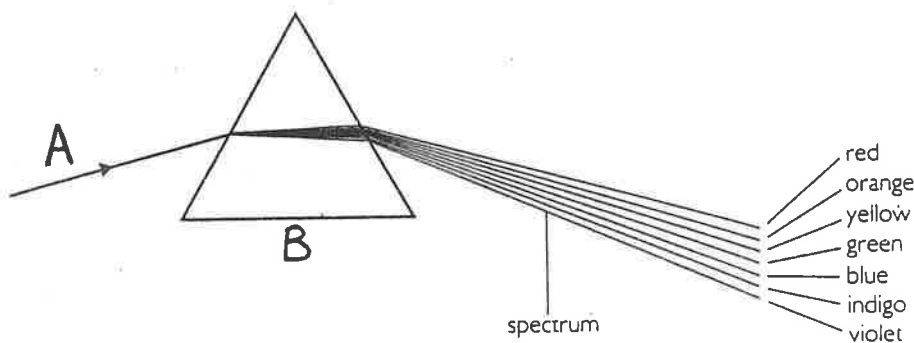
- (a) 0.5 m/sec
- (b) 2 m/sec
- (c) 4 m/sec
- (d) 12 m/sec
- (e) 32 m/sec

B

Match each word or phrase in Box X with the most suitable word or phrase in Box Y.

BOX X	BOX Y	ANSWER
1 red and blue light	A give yellow light	1 &
2 blue and green light	B give orange light	2 &
3 green and red light	C give white light	3 &
4 red, green and blue light	D give magenta light	4 &
	E give turquoise light	

C



(i) A is a narrow beam of light. What colour is A? \_\_\_\_\_

(ii) It is passed through a piece of apparatus, B, which is made of glass. What is B called?  
\_\_\_\_\_

(iii) If a blackened thermometer bulb is placed just outside the red end of the spectrum, a rise in temperature is noticed. Why? \_\_\_\_\_  
\_\_\_\_\_

(iv) Which rays are found just outside the violet end of the spectrum?  
\_\_\_\_\_

(v) How can these rays be detected? \_\_\_\_\_  
\_\_\_\_\_

Tick the correct answer.

Which of the following units is used to measure force?

- (a) amperes
- (b) joules
- (c) newtons
- (d) ohms
- (e) volts

B

Complete the table below, using words from this list:-

potential → kinetic

chemical → heat

electrical → sound

sound → kinetic

kinetic → heat

Energy conversion	Example of when it happens
	in a coal fire
	when a singer shatters glass by a high note
	freewheeling downhill on a bicycle
	in a loudspeaker

C

(i) All living things release energy from food. What is this process called?

\_\_\_\_\_

(ii) The energy in food is chemical energy. This energy is converted to other forms in our bodies. What energy conversion takes place in the muscles?

\_\_\_\_\_

Look at the drawings below.



(iii) Which man has done more work when he reaches the top of the steps? \_\_\_\_\_

(iv) Why? \_\_\_\_\_

(v) Calculate the work done by A in carrying the load to the top of the steps.

\_\_\_\_\_

3

**A**

Tick the correct answer.

Distillation is used in:

- (a) making builders washed sand
- (b) making cheese
- (c) making soap powder
- (d) manufacture of petroleum
- (e) purifying table salt

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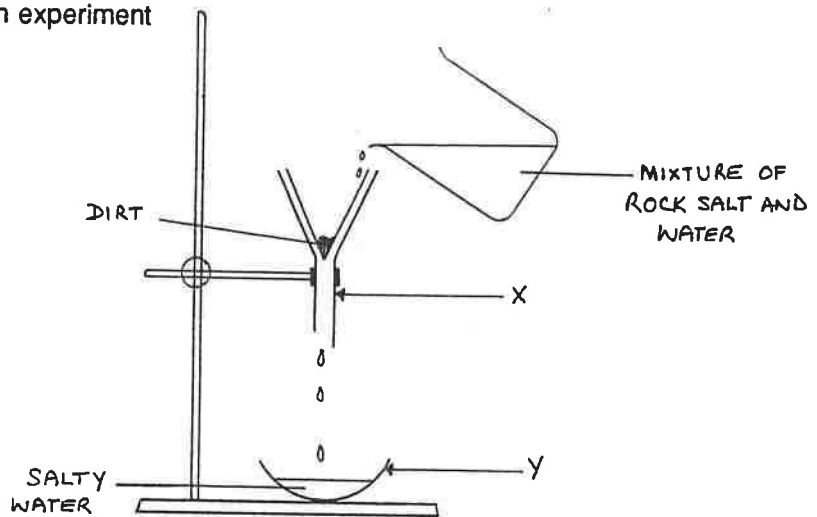
**B**

Match each word or phrase in Box X with the most suitable word or phrase in Box Y.

Box X	Box Y	Answer
1 melting	A solid to gas	1 and
2 sublimation	B gas to liquid	2 and
3 boiling	C liquid to solid	3 and
4 freezing	D solid to liquid	4 and
	E liquid to gas	

**C**

The diagram shows part of an experiment to purify rock salt.



(i) Name the equipment labelled X and Y.

X \_\_\_\_\_

Y \_\_\_\_\_

(ii) Why does the dirt stay in the filter paper? \_\_\_\_\_

(iii) Why does the salt pass through the filter paper? \_\_\_\_\_

(iv) Describe how you could separate the salt from the water. \_\_\_\_\_

Tick the correct answer.

The formula for **Magnesium oxide** is:

- (a) MgO
- (b) Mg<sub>2</sub>O
- (c) Mg<sub>2</sub>O<sub>2</sub>
- (d) MgO<sub>2</sub>
- (e) Mg<sub>3</sub>O<sub>2</sub>

## B

For each of the following substances say if it is an **element, compound or mixture**.

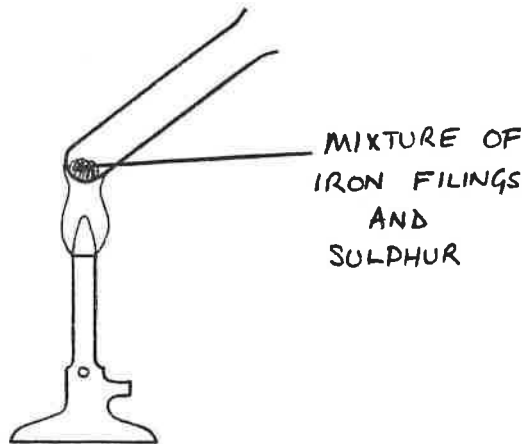
Sea water \_\_\_\_\_

Ammonia \_\_\_\_\_

Copper \_\_\_\_\_

## C

7g of iron filings and 4g of powdered sulphur are heated strongly in a test tube as shown in the diagram.



(i) What happens when the iron and sulphur are heated? \_\_\_\_\_

\_\_\_\_\_

(ii) What is the name of the substance formed? \_\_\_\_\_

(iii) Is the new substance a mixture or a compound? \_\_\_\_\_

(iv) How can you tell? \_\_\_\_\_

\_\_\_\_\_

(v) Has a physical or a chemical change taken place? \_\_\_\_\_

5

A

Tick the correct answer.

Sodium is very reactive because:

- (a) it forms covalent bonds
- (b) it forms negative ions
- (c) it is a metal
- (d) it is an element
- (e) it has one electron on its outer shell

B

Complete the table below, using words from this list:

carbon, chlorine, lithium, mercury, neon

Element	Description of element
	noble gas
	non-metallic solid
	green halogen gas
	whitish alkali metal

C

Potassium is a metal which burns in air.

(i) What gas is needed for burning? \_\_\_\_\_

(ii) What is the name of the compound formed by burning potassium in air?

\_\_\_\_\_

(iii) What is its formula? \_\_\_\_\_

(iv) Why is potassium never found pure in the ground, while copper is?

\_\_\_\_\_

\_\_\_\_\_

(v) Name another element in the same group of the periodic table as potassium.

\_\_\_\_\_

over

6

A

Tick the correct answer.

The plant carries out **photosynthesis** mostly in the:

- (a) flower
- (b) leaf
- (c) root
- (d) stem
- (e) tuber

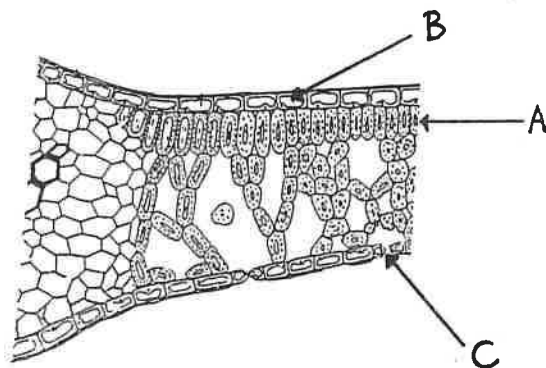
B

Fill in the blanks in these sentences:

The gas necessary for photosynthesis is \_\_\_\_\_ . The plant takes in this gas through \_\_\_\_\_ in the leaves, which open and close. The laboratory test for this gas is that it \_\_\_\_\_ .

C

The diagram shows a vertical section through a leaf.



(i) Label the parts marked A, B, and C.

A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

(ii) The cells marked A contain a green pigment. What is it called?

\_\_\_\_\_

(iii) Which cells in the leaf will make the most food? \_\_\_\_\_

(iv) Name the food stored by the plant. \_\_\_\_\_

over

**7 A**

Tick the correct answer.

The fruit of a plant develops from:

- (a) the anther
- (b) the ovary
- (c) the sepals
- (d) the stamens
- (e) the style

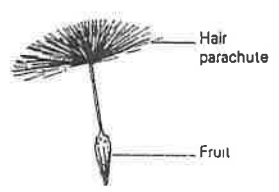
**B**

Use the correct words to complete the following sentences:

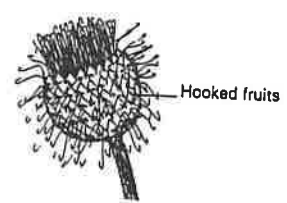
In an onion bulb the leaves are modified for \_\_\_\_\_

A strawberry runner is an example of a \_\_\_\_\_ which is modified for \_\_\_\_\_

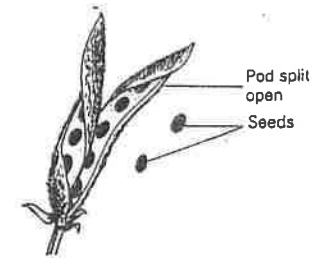
**C**



(a) DANDELION



(b) BURDOCK



(c) SWEET PEA

(i) How are each of these seeds dispersed?

- (a) \_\_\_\_\_
- (b) \_\_\_\_\_
- (c) \_\_\_\_\_

(ii) If the seeds were not dispersed but all fell near the parent plants, explain what would happen.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(iii) List 3 conditions necessary for germination.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



A

Tick the correct answer.

Movement of water from the soil into the plant starts at the:

- (a) epidermis
- (b) phloem
- (c) stomata
- (d) xylem
- (e) root hairs

B

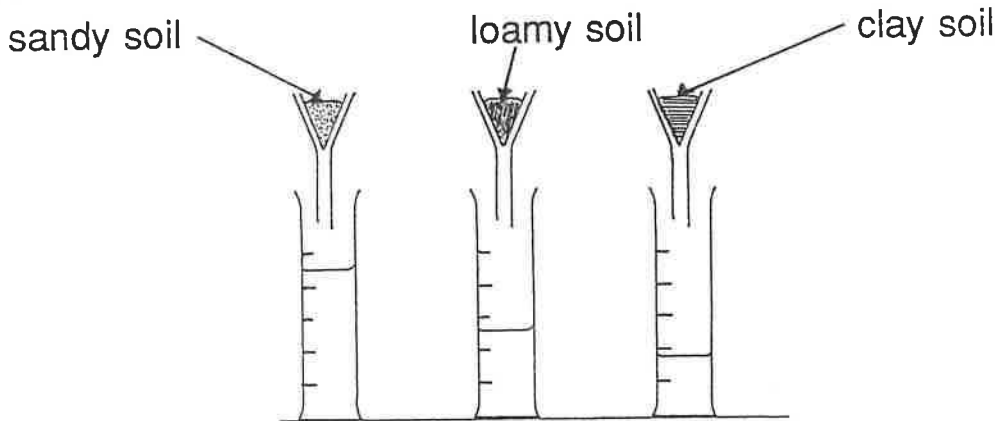
Complete the table below, using words from this list:

**pooper, sweep net, quadrat, plankton net, hand lens**

Equipment	Use
	suck up small animals
	collecting insects in grass
	catching very small animals in water
	counting the numbers of plants and animals

C

Three soil samples were tested as shown. 50 cm<sup>3</sup> of water was poured through each.



(i) Which type of soil has the best drainage? \_\_\_\_\_

(ii) Name two other solid parts of soil as well as sand and clay.

A \_\_\_\_\_ B \_\_\_\_\_

(iii) When water is poured onto some soil in a graduated cylinder, bubbles are seen to rise up the cylinder. What does this tell you about soil? \_\_\_\_\_

(iv) The diagram shows a Tullgren funnel.

What is it used for?

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

