# TOPICAL PRACTICE 4

# 4 Plants

PART A

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## 4.1 Plants Respond to Stimuli

1 Diagram 1 shows the observation made at the end of an investigation.

HOTS

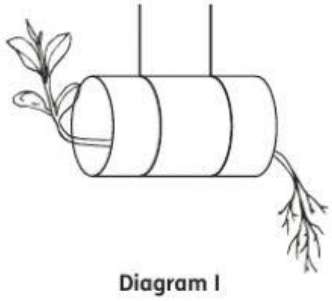

Diagram 1

What conclusion can be made from this observation?
Put a tick (✓) for the **correct** answer and a cross (✗) for the **wrong** answer.

(a) Shoots have positive response towards air. ☐

(b) Roots have positive response towards gravity. ☐

(c) Shoots have negative response towards gravity. ☐

(d) Roots have negative response towards sunlight. ☐

(4 *marks*)

2 Which parts of the plants respond to the following stimuli?
Write letters P, Q or R in the suitable box.

| | | |
|---|---|---|
| P | Q | R |

(a) Grow towards sunlight ☐

(b) Grow towards water ☐

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(c) Grow towards gravity

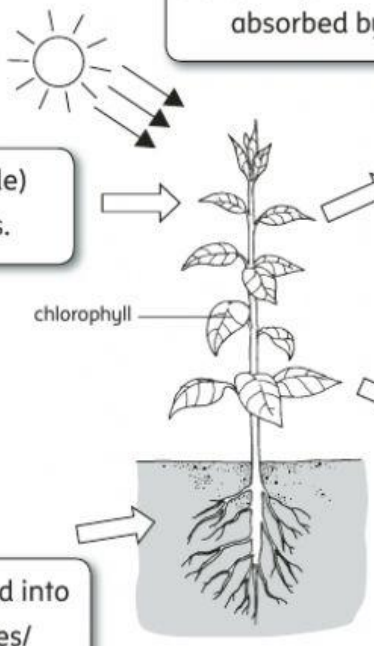
(d) Fold up when they are touched

(e) Grow away from gravity

(5 *marks*)

## 4.2 Photosynthesis

**3** Diagram 2 shows a life process of plants known as photosynthesis. Underline the correct answers.




(a) (Sunlight/Carbon dioxide) is absorbed by chlorophyll.

(b) (Oxygen/Carbon dioxide) diffuses into the leaves.

(c) (Oxygen/Carbon dioxide) is released.

(d) Water in the soil is absorbed into the plant through the (leaves/ roots).

(e) (Nutrient/Starch) is produced.

**Diagram 2**

(5 *marks*)

**4** Circle the correct answers.

| | | |
|---|---|---|
| (a) Which organism cannot carry out photosynthesis? | ferns | fungi |
| (b) At which time does photosynthesis cannot be carried out? | day | night |
| (c) What is the name of the process of plants that help them to make food? | photosynthesis | breathing |
| (d) Which part of the plants carries out photosynthesis? | leaves | roots |
| (e) Which product of photosynthesis is needed by humans to breathe? | carbon dioxide | oxygen |

(5 *marks*)

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## PART B

/10

**Instruction**: *Choose the correct answer from* **A, B, C** *or* **D.**

### 4.1 Plants Respond to Stimuli

1 HOTS Diagram 1 shows an investigation

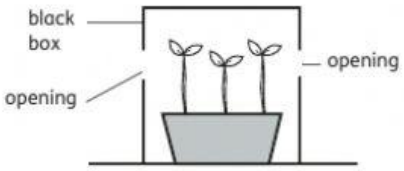
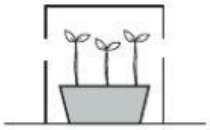
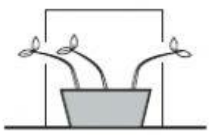


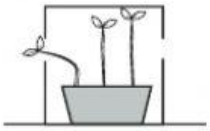

**Diagram 1**

Predict what will happen after one week.

A 

C 

B

D 

2 Diagram 2 shows an apparatus set-up prepared for an investigation.

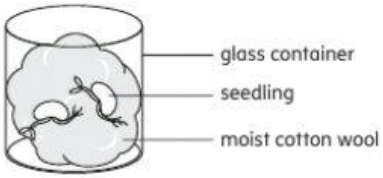



**Diagram 2**

What is being investigated in this experiment?

**A** To investigate the response of plants to water
**B** To investigate the response of plants to gravity
**C** To investigate the response of plants to touch
**D** To investigate the response of plants to sunlight

3 HOTS Diagram 3 shows an observation made on a pot of flowering plant which was hung upside down at the compound of a house.

**Diagram 3**

Why did the shoots of the plant grow in that direction?

**A** Shoots respond to air
**B** Shoots respond to gravity
**C** Shoots respond to carbon dioxide
**D** Shoots respond to sunlight

4 HOTS Diagram 4 shows an observation made on a seedling which was covered with a black box with an opening for one week.

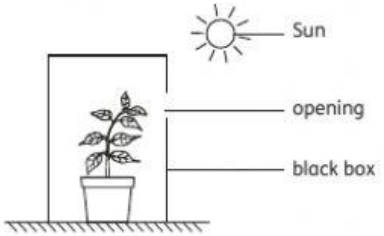



**Diagram 4**

What is the importance of this type of response to the plants?

**A** Helps plants to get enough water
**B** Helps plants to get enough air
**C** Helps plants to get enough minerals
**D** Helps plants to get enough sunlight

5 The mimosa leaves fold up when brushed by our hands. What is the stimulus that causes this response?

**A** Water **C** Touch
**B** Gravity **D** Sunlight

### 4.2 Photosynthesis

6 HOTS UPSR CLONE Diagram 5 shows a stage in the growth of a green bean seed.

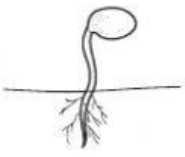


**Diagram 5**

Why does photosynthesis cannot be carried out at this stage?

**A** Not mature
**B** No green leaves
**C** Air cannot be absorbed
**D** The roots are not long enough

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7 Which of the following is **not** needed to carry out photosynthesis?
- **A** Sunlight
- **B** Carbon dioxide
- **C** Chlorophyll
- **D** Flowers

8 HOTS What happens to the excess sugar in the plants?
- **A** Expelled from the plants
- **B** Converted to starch to be stored
- **C** Converted to carbon dioxide to be released
- **D** Used by the plants to make new food

9 HOTS Diagram 6 shows an apparatus set-up prepared for an investigation.

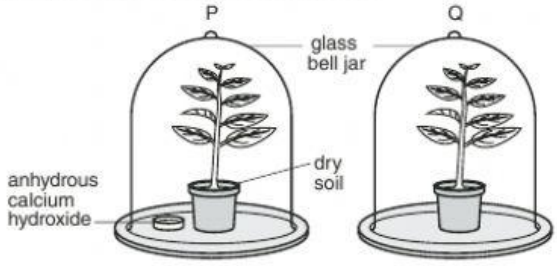


**Diagram 6**

What is the hypothesis for this investigation based on the apparatus set-up in Diagram 6?
- **A** Plants need water to carry out photosynthesis.
- **B** Plants need chlorophyll to carry out photosynthesis.
- **C** Plants need carbon dioxide to carry out photosynthesis.
- **D** Plants need sunlight to carry out photosynthesis.

10 Which of the following statements is correct?
- **A** Roots of plants grow towards water to get nutrients.
- **B** Shoots of plants grow towards sunlight to look for food.
- **C** Plants move from one place to another to look for minerals.
- **D** Plants do not need to move to look for food because plants can make their own food.

## PART C

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**Instruction**: *Write your answers in the spaces provided.*

## 4.1 Plants Respond to Stimuli

1 Diagram 1 shows an investigation carried out to examine the response of plants.

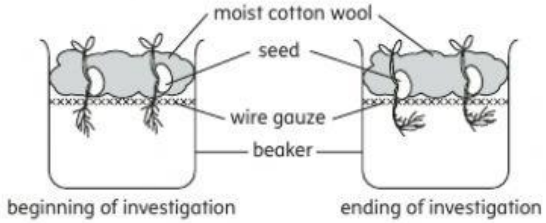


**Diagram 1**

(a) What is the aim of this investigation?

_____

(1 *mark*)

(b) What observation can be made at the end of the investigation?

_____

(1 *mark*)

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HOTS (c) What conclusion can be made from the observation?

_____

(1 *mark*)

HOTS (d) In your opinion, between water and gravity, which stimulus will the roots respond to?

_____

(1 *mark*)

HOTS (e) Give **a** reason for your opinion in (d).

_____

(1 *mark*)

## 4.2 Photosynthesis

**2** Diagram 2 shows a life process of plants.

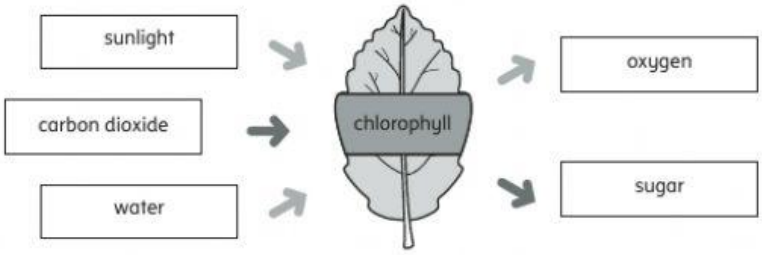


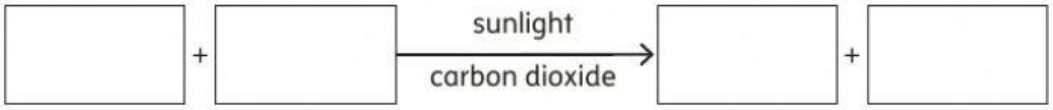

**Diagram 2**

(a) What is the name of this process?

_____

(1 *mark*)

(b) Complete the equation for the process by filling in the suitable words in the boxes below.




(2 *marks*)

(c) Explain briefly this life process of plants.

_____

_____

(1 *mark*)

HOTS (d) Explain why the gas produced is important to humans and other living things.

_____

(1 *mark*)

(e) What happens to the sugar produced?

_____

_____

(1 *mark*)

HOTS (f) Predict what will happen to other living things if plants do not carry out this process.

_____

(1 *mark*)

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3 A group of pupils kept two pots of green plants in a dark cupboard for 24 hours so that the starch present in the leaves was used up. They then prepared the apparatus set-up as shown in Diagram 3. Potassium hydroxide solution was used to absorb the carbon dioxide. Both plants were exposed to sunlight for 4 hours. A leaf was plucked from each plant and the test for the presence of starch was conducted with iodine solution. Table I shows the results obtained.

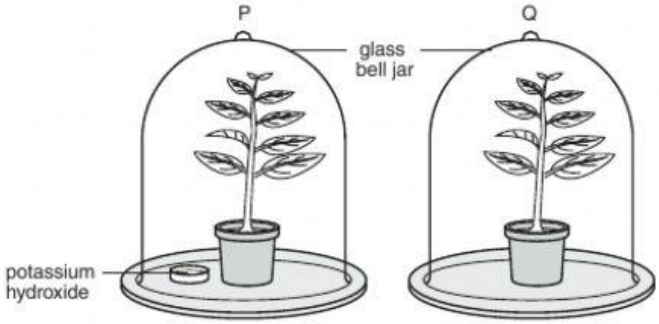


**Diagram 3**

| Leaf from set | Presence of starch |
|---|---|
| P | No starch is present |
| Q | Starch is present |

**Table I**

(a) What is the aim of this investigation?

_____

(1 *mark*)

HOTS (b) What is the manipulated variable in this investigation?

_____

(1 *mark*)

HOTS (c) Has photosynthesis been carried out by the plant in glass bell jar P?
Tick (✓) the correct answer.

☐ Yes ☐ No

HOTS Give your reason.

_____

(1 *mark*)

(d) Has photosynthesis been carried out by the plant in glass bell jar Q?
Tick (✓) the correct answer.

☐ Yes ☐ No

HOTS Give your reason.

_____

(1 *mark*)

HOTS (e) What conclusion can be made from this investigation?

_____

(1 *mark*)

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TOPICAL PRACTICE 5

# 5 Properties of Light

PART A

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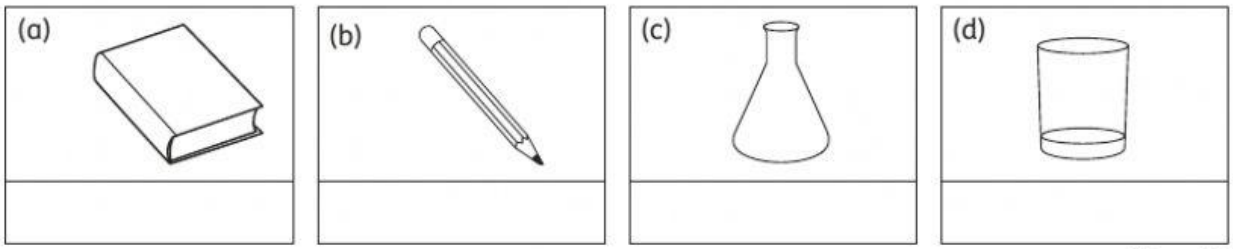
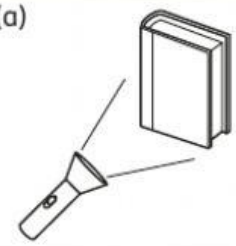
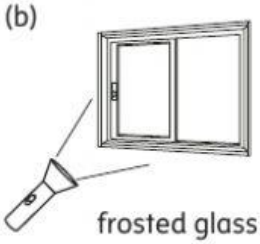
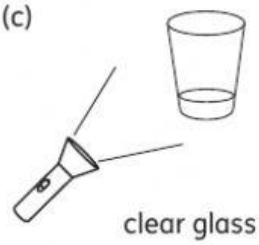
## 5.1 Light Travels in a Straight Line

1 Tick (✓) the objects that produce shadows and a cross (✗) the objects that do not produce shadows.




(4 marks)

2 Shade the darkness of the shadows formed when light is shone on the following objects.

| Type of object | The darkness of shadows formed | Type of material (Transparent/Translucent/Opaque) |
|---|---|---|
| (a)  | (i) | (ii) _____ |
| (b)  frosted glass | (i) | (ii) _____ |
| (c)  clear glass | (i) | (ii) _____ |

(6 marks)

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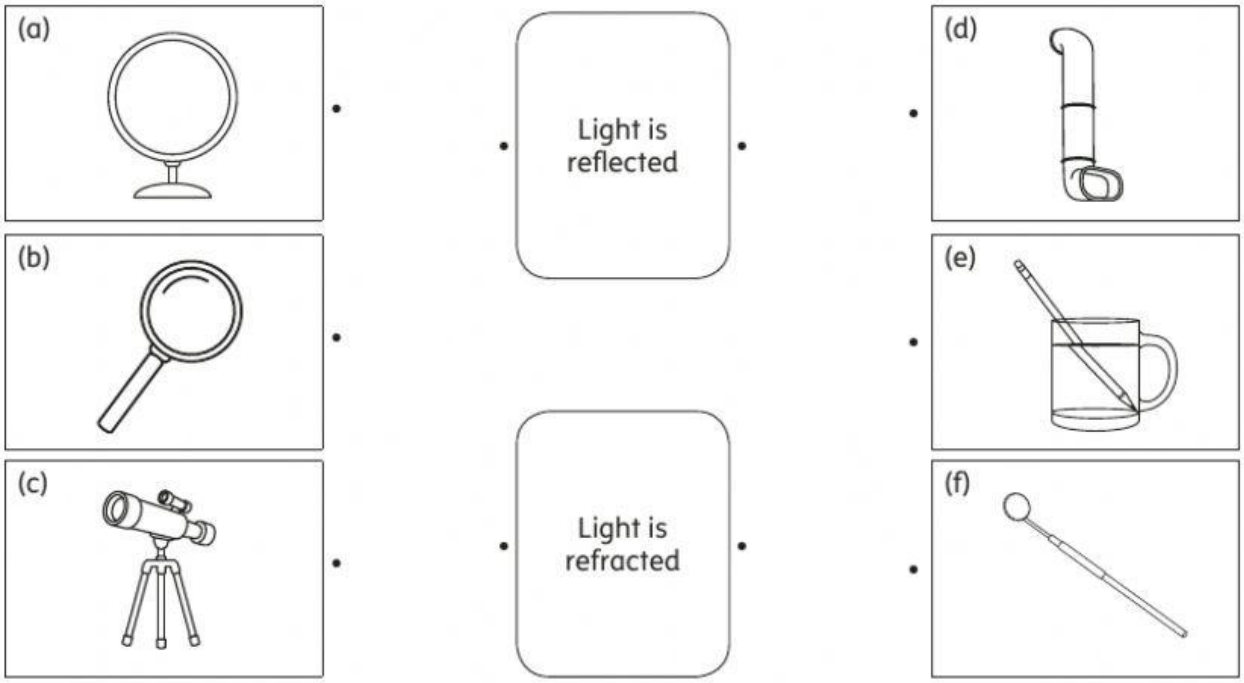
## 5.2 Light Can be Reflected

## 5.3 Light Can be Refracted

**3** Match the properties of light used for the objects below.




(6 *marks*)

## PART B

10

**Instruction**: *Choose the correct answer from* **A**, **B**, **C** *or* **D**.

## 5.1 Light Travels in a Straight Line

**1** What must Ahmad do to ensure the candle flame can be seen clearly in Diagram I?

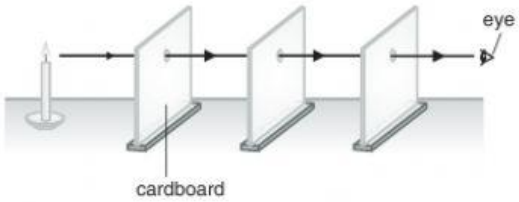



**Diagram I**

**A** Position the holes in line with his eye.
**B** Move some of the cardboard to the left and some to the right.
**C** Place the candle on a flat, shiny and smooth surface.
**D** Place the cardboard away from the light source.

**2** Table I shows the results of an investigation carried out by Damia on the ability of light to pass through objects.

| Object | Ability of light to pass through object |
|---|---|
| X | All light can pass through |
| Y | No light can pass through |
| Z | Some light can pass through |

**Table I**

Which of the following statements is correct?

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**A** Z is a transparent material.
**B** X is unable to let customers see the products from the outside of the shop.
**C** A shadow is formed when light is shone on object Y.
**D** A translucent object like Z enables us to see clearly while driving a vehicle.

**3** HOTS Diagram 2 shows an investigation on the formation and size of shadows formed.

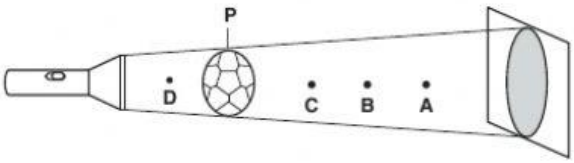
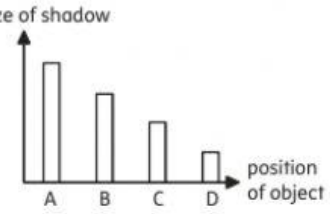
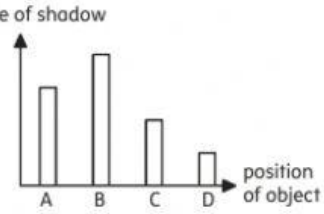
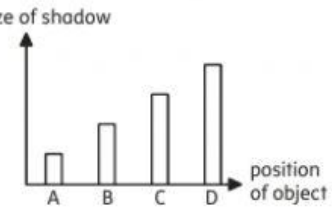


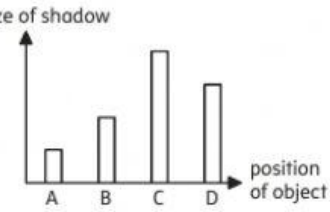

**Diagram 2**

Which of the following bar charts represents the size of the shadows formed when object P is at A, B, C and D?

**A**



**B**



**C**



**D**



**4** HOTS In the olden days, the construction of lighthouses on the shoreline was of great help to the sailors.

**Diagram 3**

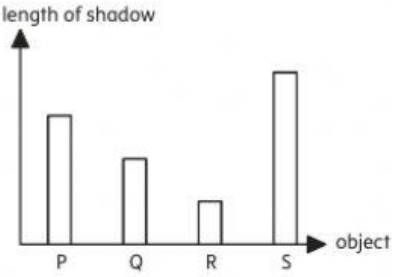
Predict what would happen if no lighthouse was built.

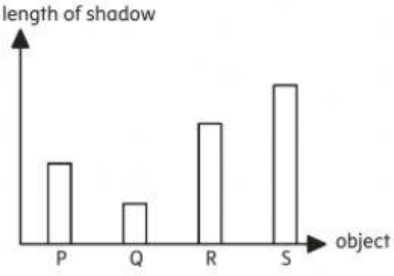
**A** The ships would sail with the help of the wind.
**B** The destination of a ship could not be determined.
**C** Difficult for sailors to identify land from a great distance.
**D** The duration of a voyage would be much longer.

**5** The statements below show the results obtained by a group of pupils who carried out an investigation.

- P produces the longest shadow.
- Q produces a shadow which is shorter than R.
- S produces a shadow which is longer than R but shorter than P.

Which bar chart represents the information above?

**A**



**B**
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