

## CHARACTERISTICS OF LIVING ORGANISMS

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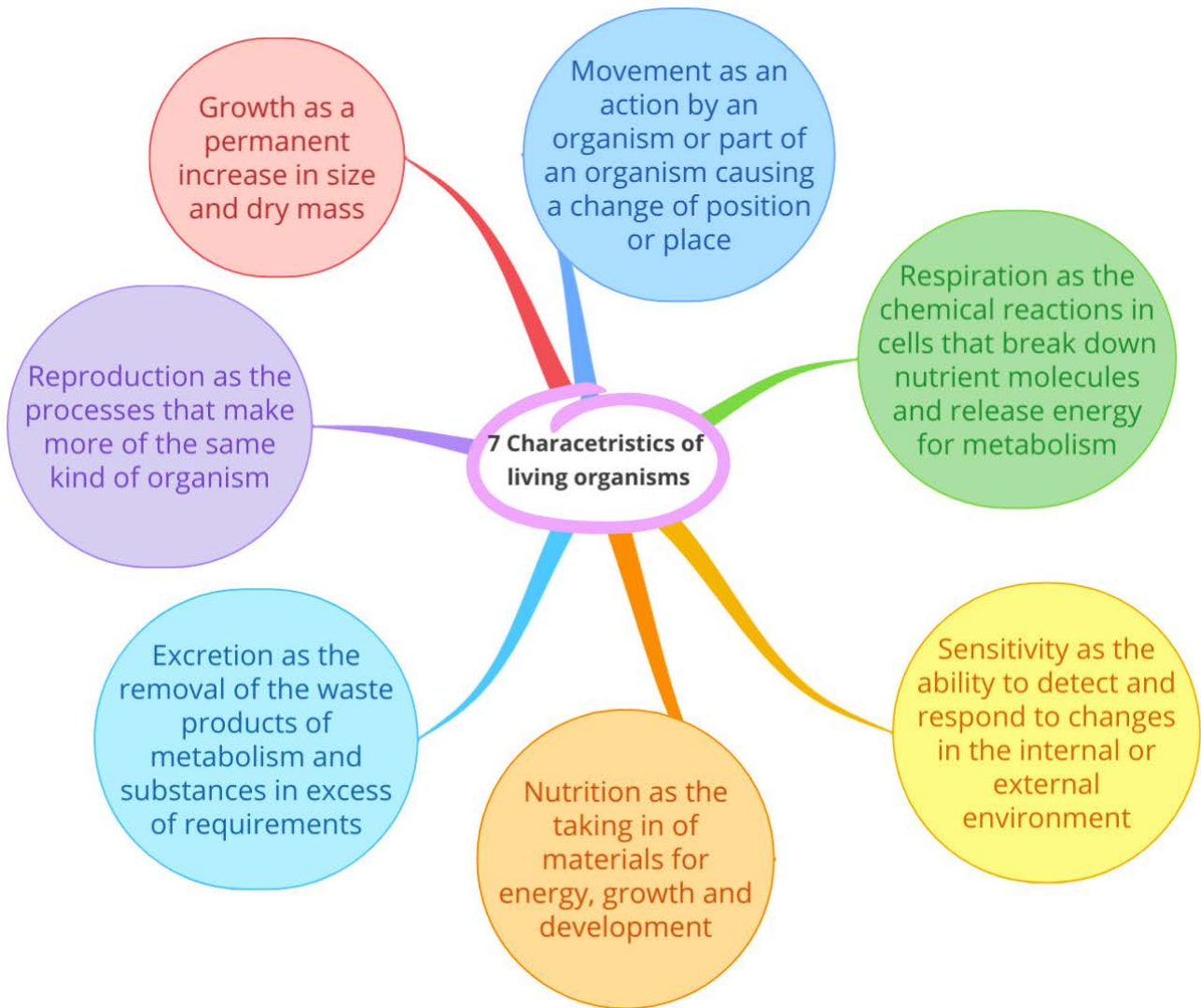
Following are the seven characteristics of living organisms:

1. **Movement:** It is an action by an organism or part of an organism causing a change of position or place.
2. **Respiration:** The chemical reactions in the cells that break down nutrient molecules and release energy for metabolism are called as respiration
3. **Sensitivity:** It is the ability to detect and respond to changes in the internal or external environment.
4. **Growth:** It is the permanent increase in size and dry mass
5. **Reproduction:** Processes that makes more of the same kind of organism.
6. **Excretion:** It is the removal of the waste products of metabolism and substances in excess of requirements.
7. **Nutrition:** It is the taking in of materials for energy, growth and development.

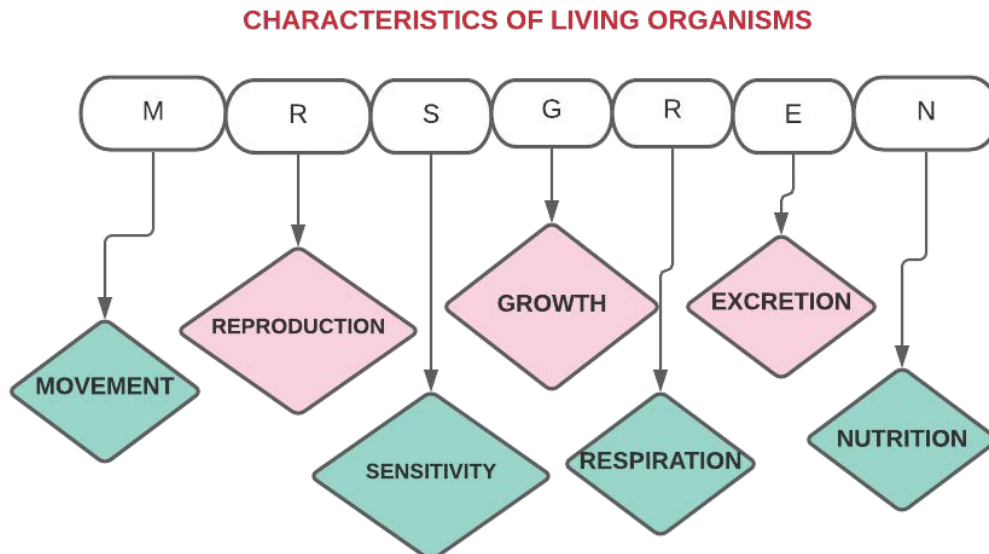
Note: The correct answer option has been mentioned at the extreme end of the question code as shown in the example below

O/N/10/12/Q7-C

## MIND MAP FOR THE CHARACTERISTICS OF LIVING ORGANISMS



**MNEMONIC FOR THE SEVEN CHARACTERISTICS OF LIVING ORGANISMS:**

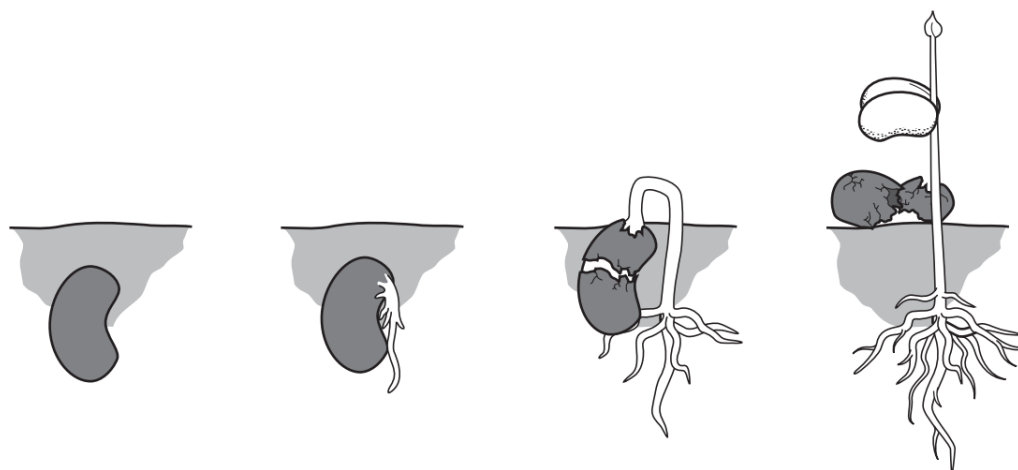


## SOME IGCSE PAST PAPER QUESTIONS:

### MCQ:

O/N/14/12-Q1-B

- 1 The diagram shows how a seed changes after it is planted in well-watered soil.



Which characteristics of living things are demonstrated by this sequence?

- A growth and reproduction
- B growth and sensitivity
- C nutrition and reproduction
- D nutrition and sensitivity

**Answer B:** The answer is B. This is because the seed is seen to grow by developing roots and shoots. The diagram also shows the roots growing towards gravity and the shoot towards the sunlight. Hence the image shows growth as well as sensitivity.

O/N/15/12/-Q1-D

- 1 Some lizards detach their tails when threatened by a predator.

Which characteristic is shown?

- A excretion
- B growth
- C reproduction
- D sensitivity

Give your justification for Option D being correct here

6 Which characteristic of living organisms is described by the following definition?

'The ability to detect changes in the environment and make responses'.

- A excretion
- B movement
- C respiration
- D sensitivity

**Give your justification for Option D being correct here**

7 Which characteristic of living organisms can involve ingestion, absorption and assimilation?

- A excretion
- B growth
- C nutrition
- D respiration

**Give your justification for Option C being correct here**

**All questions taken as examples for study notes are from pure science and not coordinated sciences. This is only for reference purpose**

**EXTENDED THEORY:**

**O/N/11-P32-Q2(a)**

2 (a) Movement is a characteristic of living organisms.

Define the term *movement*.

.....  
..... [1]

**MARK SCHEME:**

2	(a)	whole / part of, organism changes in position / changes in place ;	[1]	ignore locomotion A (moves) from place to place / one place to another
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**This is an example of how the answer needs to be written to the above question:**

**IDEAL ANSWER AS PER THE NEW SYLLABUS PRESCRIBED FOR 2023 TO 2025 EXAMS**

**Movement: It is an action by an organism or part of an organism causing a change of position or place.**

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## SIZE OF SPECIMENS

### CORE:

Magnification and size of biological specimens are measured using millimetres as units

### SUPPLEMENT:

Calculate magnification and size of biological specimens using millimetres and micrometres as units

- Formula for calculating magnification:
- Magnification has no units.
- The magnification value is preceded by a " x" sign
- There are 1000 micrometers ( $\mu\text{m}$ ) in a millimeter.
- To calculate the magnification of an image we use the formula:

$$\text{Magnification} = \frac{\text{image size}}{\text{actual size}}$$

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