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### Assessment of student learning- home assignments & tests



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# GENERAL SCIENCE PROJECT 2021-22



## Project for Half-yearly

- Project Title - 1) The importance of pH in everyday life.  
2) The electronic distribution of the elements of first and second period of the Modern Periodic Table.

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- 1) <sup>1)</sup> Importance of PH in everyday life
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  - \* PH in our digestive system.
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  - \* Existence of living beings.
  - \* Some animals and plants containing acids
  - \* PH of blood.
  - \* Acid produced in fatigued muscle.
- 2) Electronic distribution of the elements of first and second period of the Modern Periodic Table.

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1) The importance of pH in everyday life.

## What is pH?

In chemistry, pH (historically denoting "potential of hydrogen" or "power of hydrogen") is a scale used to specify the acidity or basicity of an aqueous solution. Acidic solutions (solutions with higher concentration of  $H^+$  ions) are measured to have lower pH values than basic or alkaline solutions.

The pH scale is logarithmic and inversely indicates the concentration of hydrogen ions in the solution. Measurements of pH are important in chemistry, agronomy, medicine, water treatment, and many other applications.

The Importance of pH in everyday life

pH plays a very important role in our everyday life.

\* pH in our digestive system:

Hydrochloric acid produced in our stomach helps the digestion of food in our stomach without causing any harm to it. But <sup>when</sup> the amount of the acid goes beyond a certain limit due to indigestion, pain and irritation are created in the stomach. So, in order to neutralize the effect of excess acid, a mild base called antacid is usually taken. Magnesium hydroxide (milk of magnesia) is a mild base which is usually used as an antacid.

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\* Acids causes tooth decay:

When we eat sugary food, it gets degraded by bacteria present in the mouth and an acid is formed.

When pH becomes lower than 5.5, tooth enamel gets corroded. Saliva which is slightly alkaline, produced in the mouth neutralizes some acids, but excess acid remains unaffected. The excess acid can be removed only by the use of toothpaste which is alkaline. Neem stick contains alkaline juice. So, the cleaning of tooth by neem stick also helps to reduce tooth decay.

\* pH of Soil: The soil pH plays a major role in the growth of plants and crops. The ideal pH for the growth of plants is 6.3 to 7.3 which will be responsible for the good growth of plants. If the pH is acidic, the lime is added to neutralize the acidity and gypsum is added to neutralize the basicity of soil.

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## Existence of living beings:

Organisms require a specific pH for their ideal growth and development. In the human body, all the physiological reactions take place in the pH of 7-7.8. The existence of aquatic plants, animals and microbes is at risk when acid rains mix with natural water bodies.

## \* Some animals and plants containing acids:

Honey-bee injects an acid through its stings which causes pain and irritation. Hence, a mild base like baking soda is applied to treat the wound.

Similarly, nettle leaves, which have stinging hair, when touched inject formic acid in our body. This causes a burning pain.

## \* pH of blood:

Human blood has a pH range of 7.0 to 7.8 which is slightly alkaline in nature and it's also a basis of optimal survival. If the pH changes more than this range then the body fails to function well.

## \* Acid produced in fatigued muscle:

As a result of physical exercise, stiffness and pain in the muscle starts due to the formation of lactic acid. The supply of oxygen in the muscle is reduced. This causes difficulty in the release of energy leading to increase in the rate of anaerobic metabolism. As a result, lactic acid gets accumulated in the muscles.



27) Electronic distribution of the elements of first and second period of the Modern Periodic Table.

⇒ The electronic distribution of the elements of the first period of the Modern Periodic Table are:

<u>Atomic Number</u>	<u>Element</u>	<u>Symbol</u>	<u>Electronic Distribution</u>
1	Hydrogen	H	1
2	Helium	He	2

The electronic distribution of the elements of the second period of the Modern Periodic Table are:

<u>Atomic Number</u>	<u>Element</u>	<u>Symbol</u>	<u>Electronic Distribution</u>
3	Lithium	Li	2.1
4	Beryllium	Be	2.2
5	Boron	B	2.3
6	Carbon	C	2.4
7	Nitrogen	N	2.5
8	Oxygen	O	2.6
9	Fluorine	F	2.7
10	Neon	Ne	2.8