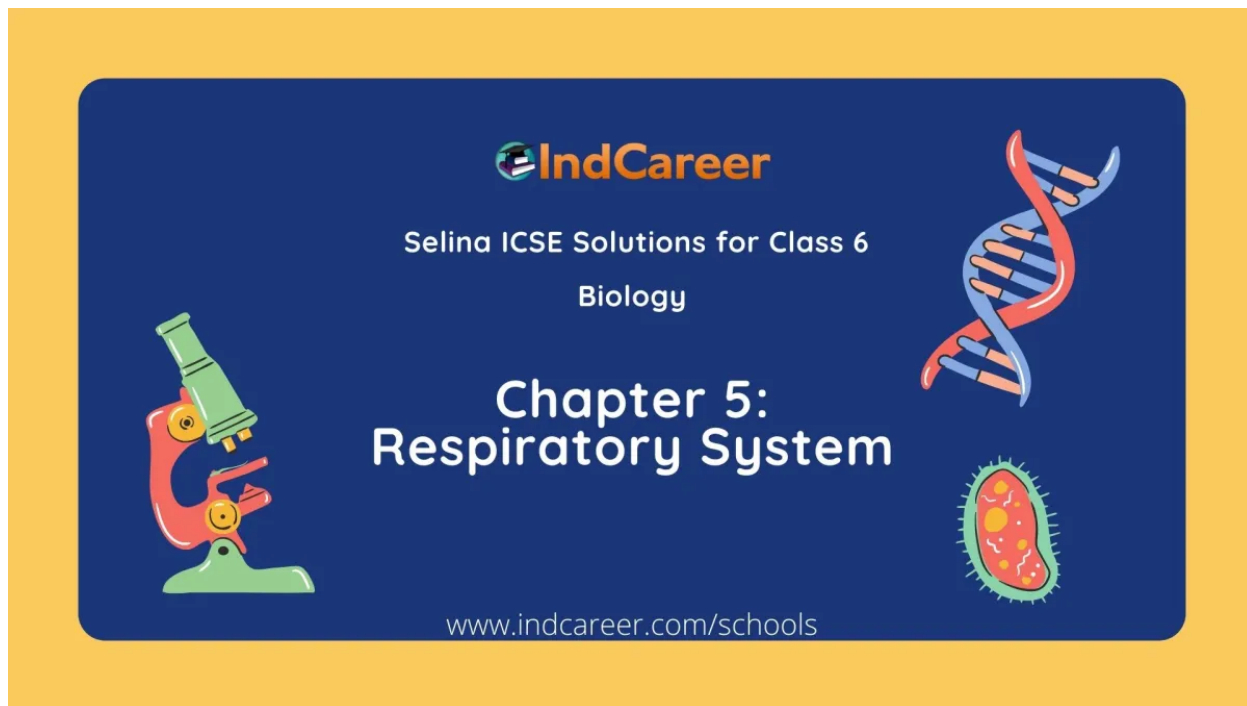


Selina Class 6 ICSE Solutions Biology (Unit 2) - The Cell: Chapter 5- Respiratory System



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- The Cell: Chapter 5- Respiratory System

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Review Questions

Multiple Choice Questions

1. Put a tick (✓) against the most appropriate alternative in the following statements.

(i) In humans, taken in of the air through nostrils into the nasal cavity is called

(a) Inhalation

(b) Exhalation

(b) Cellular respiration

(d) Internal respiration

(ii) The front opening of the wind pipe is guarded by —

(a) Glottis

(b) Exoglottis

(c) Epiglottis

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(d) Trachea

(iii) The process during which food is oxidised and energy is released is called

(a) Cellular respiration

(b) Excretion

(c) Digestion

(d) Transpiration

Short Answer Questions

1. Answer briefly the following:

1. Why do our body cells require oxygen ?

Ans. Body cells require oxygen for the break down of glucose and release energy for carrying out various life functions.

2. What is the difference between breathing and respiration?

Ans. Breathing is a simple physical process of drawing in air through the nostrils and expelling it out.

Respiration is a chemical process which involves the breakdown of food and release energy.

3. Name the by-product formed during the oxidation of food.

Ans. The by- products formed are

1. carbon-di-oxide
2. water

4. Name the agency which transports oxygen to all parts of the body.

Ans. Blood .

5. What is the role of epiglottis during swallowing ?

Ans. Epiglottis closes the wind pipe at the time of swallowing.

Question 2.

Describe in brief the function of ribs and diaphragm in breathing.

Answer:

1. **Ribs muscles**—During inhalation, the ribs muscles contract and push the ribs upward and outward.

During exhalation these relax and cause the ribs to return to original position.

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2. **Diaphragm:** During inhalation it becomes flattened while during exhalation it relaxes and moves up and back into convex (dome) shape.

Question 3.

Name the gas which is expelled out during expiration. Where is it originally produced in our body ?

Answer:

The gas which is expelled during expiration is carbon-di-oxide. It is produced as a result of oxidation of glucose in the tissues. (Cellular respiration)

Question 4.

Name the following:

1. Respiratory process
2. in which oxygen is not utilized.
Ans. Cellular respiration
3. Respiratory process in which oxygen is utilized.
Ans. Gaseous transport
4. The microscopic air-sacs of the lungs.
Ans. Alveoli
5. The two membranes which protect the lungs.
Ans. Outer pleura, inner pleura

Long Answer Questions:

Question 1.

Why is a respiratory system necessary ?

Answer:

Respiratory system is very important for the body. Respiration in human beings is divided into two distinct parts. The first part involves taking in oxygen from the air or what we commonly call breathing. The respiratory system is responsible for breathing in and out of air, and exchange of gases. The main parts of the respiratory system consist of the nostrils, trachea or wind pipe and lungs.

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The blood, then, transports the oxygen to the individual cell where it is used for the chemical process of respiration. This is known as cellular respiration. The second part involves taking out carbon dioxide, which is a waste product of cellular function.

Question 2.

What factors are most likely to affect the breathing rate ?

Answer:

Breathing is a necessary function for human beings. It supplies oxygen for a process called cellular respiration, which is how cells manufacture the energy they need for their life functions.

There are lots of things that can affect the rate of breathing in humans and they are:

1. Exercise is one of those things, particularly aerobic exercise. Aerobic exercise is any exercise that causes the person to breathe more, such as running jogging, playing basketball, football, running track, or playing soccer.
2. Even Breathing rate also changes while the person is sleeping, sitting at rest or even after climbing the stairs.
3. Another factor that can influence breathing rate is allergic reactions to stimuli from the environment, such as pollen. This can inflame the passageways leading to the lungs, making them smaller, requiring more air.
4. Smoking is a habit that can influence the development of lung cancer, which in turn influences the rate a person breathes.
5. Nervous conditions and reactions to stimuli also influence the breathing rate, such as the fumed “fight or flight” syndrome.

Question 3.

What happens to the energy liberated during respiration?

Answer:

The energy liberated during respiration is utilised for carrying out various life processes.

Some of the energy liberated during the breakdown of the glucose molecule, is in the form of heat, but a large part of it is converted into chemical energy called Adenosine Triphosphate (ATP). Any activity inside the cell is carried out by the energy released by these ATP molecules.

Question 4.

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What do you understand by inhalation and exhalation ? How are they different from each other ?

Answer:

The physical process, by which the air containing oxygen is drawn into the lungs and air containing carbon dioxide is forced out from lungs is called breathing. Breathing involves two steps, inhalation (inspiration) and exhalation (expiration).

Inhalation (Inspiration)

1. Ribs move upwards and outwards.
2. Diaphragm is pushed downwards and flattens.
3. Volume of chest cavity increases.
4. Lungs expand, air pressure becomes low.
5. Atmospheric air at higher pressure rushes into the lungs

Exhalation (Expiration)

1. Ribs move downwards and inward.
2. Diaphragm moves upwards and becomes dome shaped.
3. Volume of chest cavity decreases.
4. Lung size reduces, air pressure becomes high.
5. Air rushes out of lungs as atmospheric air pressure is lower.

Question 5.

What do you understand by the term respiratory diseases ? Name any three common respiratory diseases.

Answer:

Any of the diseases and disorders that affect human respiration are called Respiratory diseases. Diseases of the respiratory system may affect any of the structures and organs that have to do with breathing, including the nasal cavities, the pharynx (or throat), the larynx, the trachea (or windpipe), the bronchi and bronchioles, the tissues of the lungs, and the respiratory muscles of the chest cage.

1. **Bronchitis** — It is a respiratory infection in which the lining of the bronchi becomes inflamed. As this irritated membrane begins to swell, it narrows or shuts off the bronchial passages, resulting in breathlessness and coughing spells.
2. **Asthma** — It is a chronic disease that also causes inflammation and swelling in the airways. But this happens periodically. During an asthmatic attack, a patient experiences

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tightness in the chest, shortness of breath and wheezing. This condition improves considerably with medication.

3. **Pneumonia** — It is a respiratory infection caused by a bacteria. This bacteria enters the air sacs, multiplies there and the air sacs may get filled with fluid. This disease causes chest pain, chills and high fever.

Question 6.

State the cause and treatment for the following diseases

1. Tuberculosis
2. Pneumonia
3. Bronchitis

Answer:

1. **Tuberculosis — Cause:** Caused by bacteria that can spread by air, dust or sputum.
Treatment: BCG vaccine, antibiotic — Streptomycin.
2. **Pneumonia — Cause:** Mainly caused by bacteria inhaled through air or by contact.
Treatment: Antibiotics—Penicillin.
3. **Bronchitis — Cause:** This respiratory infection is mainly caused by a virus. Air pollution and smoking can also cause bronchitis.
Treatment: Drinking plenty of fluids, following a well balanced diet, frequent hand washing and adequate rest can prevent and improve bronchitis.



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Class 6 Biology

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- Chapter 1- The Leaf
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Unit 2

- Chapter 3- The Structure and Functions
- Chapter 4- Digestive System
- Chapter 5- Respiratory System
- Chapter 6- The Circulatory System

Unit 3

- Chapter 7- Health and Hygiene
- Chapter 8- Habitat and Adaptation

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