

Breathing and Exchange of Gases — Assignment 1

Class 11 Biology · Topic-wise question bank covering every concept of the chapter · Narayan Gurukul Academy

Instructions: (1) Attempt all questions. This worksheet walks through every concept of the chapter, topic by topic.
(2) The interactive MCQ version of these questions (with instant answer reveal) is available on the notes page.
(3) Universal values: $g = 10 \text{ m/s}^2$ unless stated. Give answers with correct SI units.

Human Respiratory System — Structure

MCQ Questions (choose the correct option)

1. The primary site of gas exchange in the human body is the
 - (A) alveoli
 - (B) trachea
 - (C) bronchi
 - (D) larynx
2. The muscular sheet separating the thoracic and abdominal cavities is the
 - (A) diaphragm
 - (B) pleura
 - (C) epiglottis
 - (D) larynx
3. The double membrane covering the lungs is the
 - (A) pleura
 - (B) pericardium
 - (C) peritoneum
 - (D) meninges
4. The cartilaginous flap that prevents food from entering the trachea is the
 - (A) epiglottis
 - (B) glottis
 - (C) uvula
 - (D) alveolus

1 Mark Questions

1. Name the primary site of gas exchange in the lungs.
2. What is the diaphragm?
3. What is the epiglottis?

2 Mark Questions

1. List the parts of the human respiratory system in order.
2. State two features of alveoli that make them efficient for gas exchange.

3 Mark Questions

1. Describe the structure of the human respiratory system.
2. Explain how the alveoli are adapted for efficient gas exchange.

Mechanism of Breathing — Inspiration and Expiration

MCQ Questions (choose the correct option)

1. Inspiration occurs when the diaphragm
 - (A) contracts and flattens
 - (B) relaxes and domes up
 - (C) stays still
 - (D) expands the abdomen
2. During expiration, the volume of the thoracic cavity
 - (A) decreases
 - (B) increases
 - (C) stays the same
 - (D) doubles
3. Breathing in is called
 - (A) inspiration
 - (B) expiration
 - (C) respiration
 - (D) ventilation
4. During inspiration, the ribs move
 - (A) up and outward
 - (B) down and inward
 - (C) sideways
 - (D) nowhere

1 Mark Questions

1. What is inspiration?
2. What happens to the diaphragm during inspiration?
3. What is expiration?

2 Mark Questions

1. Distinguish between inspiration and expiration.
2. Explain the role of the diaphragm in breathing.

3 Mark Questions

1. Describe the mechanism of breathing.
2. Explain the pressure changes that cause inspiration and expiration.

Respiratory Volumes and Capacities

MCQ Questions (choose the correct option)

1. The volume of air inspired or expired during a normal breath is the
 - (A) tidal volume
 - (B) vital capacity
 - (C) residual volume
 - (D) total lung capacity
2. The maximum volume of air a person can breathe out after a forced inspiration is the

- (A) vital capacity
 - (B) tidal volume
 - (C) residual volume
 - (D) inspiratory reserve volume
3. The volume of air remaining in the lungs after a forced expiration is the
- (A) residual volume
 - (B) tidal volume
 - (C) vital capacity
 - (D) expiratory reserve volume
4. Vital capacity equals
- (A) $TV + IRV + ERV$
 - (B) $TV + RV$
 - (C) $IRV + RV$
 - (D) TV only

1 Mark Questions

1. What is tidal volume?
2. What is residual volume?
3. Define vital capacity.

2 Mark Questions

1. Distinguish between tidal volume and vital capacity.
2. Write the formula for vital capacity.

3 Mark Questions

1. Describe the respiratory volumes and capacities.
2. Explain how vital capacity and residual volume are measured.

Exchange of Gases — Partial Pressures

MCQ Questions (choose the correct option)

1. Exchange of gases between alveoli and blood occurs by
 - (A) simple diffusion
 - (B) active transport
 - (C) osmosis
 - (D) endocytosis
2. The partial pressure of oxygen is highest in the
 - (A) alveoli
 - (B) blood
 - (C) tissues
 - (D) cells
3. Movement of gases is driven by
 - (A) pressure gradients
 - (B) gravity
 - (C) temperature only

- (D) light
4. CO₂ moves from the tissues to the blood because its partial pressure in tissues is
- (A) higher
 - (B) lower
 - (C) equal
 - (D) zero

1 Mark Questions

1. By which process does gas exchange occur?
2. Where is the partial pressure of oxygen highest?
3. Where is the partial pressure of CO₂ highest?

2 Mark Questions

1. State the pressure gradient that drives oxygen uptake.
2. Explain how CO₂ is exchanged at the tissues.

3 Mark Questions

1. Explain the exchange of gases with reference to partial pressures.
2. Describe the diffusion of O₂ and CO₂ across the alveolar membrane.

Transport of Oxygen and Carbon Dioxide

MCQ Questions (choose the correct option)

1. Most oxygen is transported in the blood by
 - (A) haemoglobin
 - (B) plasma
 - (C) platelets
 - (D) white blood cells
2. The percentage of oxygen carried as oxyhaemoglobin is about
 - (A) 97%
 - (B) 50%
 - (C) 20%
 - (D) 70%
3. Most carbon dioxide is transported as
 - (A) bicarbonate ions
 - (B) carbamino-haemoglobin
 - (C) free CO₂ in plasma
 - (D) carbonic acid only
4. The enzyme that speeds up the formation of bicarbonate in RBCs is
 - (A) carbonic anhydrase
 - (B) haemoglobin
 - (C) catalase
 - (D) amylase

1 Mark Questions

1. In which form is most oxygen transported?
2. In which form is most CO₂ transported?
3. Name the enzyme that forms bicarbonate in RBCs.

2 Mark Questions

1. State two forms in which CO₂ is transported.
2. What is the oxyhaemoglobin dissociation curve?

3 Mark Questions

1. Describe the transport of oxygen in the blood.
2. Describe the transport of carbon dioxide in the blood.

Regulation of Breathing and Disorders

MCQ Questions (choose the correct option)

1. The respiratory centre is located in the
 - (A) medulla oblongata
 - (B) cerebellum
 - (C) hypothalamus
 - (D) spinal cord only
2. Breathing is mainly regulated by the level of
 - (A) CO₂
 - (B) O₂ only
 - (C) nitrogen
 - (D) water
3. Inflammation of the bronchi is called
 - (A) bronchitis
 - (B) asthma
 - (C) emphysema
 - (D) pneumonia
4. A condition in which alveolar walls are damaged, reducing surface area, is
 - (A) emphysema
 - (B) asthma
 - (C) bronchitis
 - (D) pleurisy

1 Mark Questions

1. Where is the respiratory centre located?
2. Which gas mainly regulates breathing?
3. Name one respiratory disorder.

2 Mark Questions

1. How is breathing regulated by CO₂?
2. Distinguish between asthma and emphysema.

3 Mark Questions

1. Explain the regulation of breathing.
2. Describe the common respiratory disorders.