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Mathematical Academy

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❖ ASSIGNMENT - 1

Chapter – Respiration in Organisms -:

Q (1) : What is respiration?
Ans : A process that converts food into energy.

Q (2) : Why do organisms need energy?
Ans : For growth, movement, and all life activities.

Q (3) : What are the two main types of respiration?
Ans : Aerobic and anaerobic respiration.

Q (4) : What is aerobic respiration?
Ans : Respiration that requires oxygen.

Q (5) : What is anaerobic respiration?
Ans : Respiration that occurs without oxygen.

Q (6) : Where does aerobic respiration occur?
Ans : In the mitochondria of cells.

Q (7) : What is the main product of aerobic respiration?
Ans : Energy (ATP), water, and carbon dioxide.

Q (8) : What do we produce during anaerobic respiration in humans?
Ans : Lactic acid and energy.

Q (9) : What does yeast produce during anaerobic respiration?
Ans : Alcohol (ethanol) and carbon dioxide.

Q (10) : What is ATP?
Ans : Adenosine triphosphate; it stores and provides energy for cells.

Q (11) : What is the equation for aerobic respiration?
Ans : Glucose + Oxygen → Carbon Dioxide + Water + Energy.

Q (12) : How do plants respire?
Ans : By using glucose made during photosynthesis.

Q (13) : What is the role of oxygen in respiration?
Ans : It helps break down glucose to release energy.

Q (14) : Can organisms respire without oxygen?
Ans : Yes, some can use anaerobic respiration.

Q (15) : Which organisms mainly use aerobic respiration?
Ans : Most animals and many plants.

Q (16) : What is cellular respiration?
Ans : The breakdown of glucose to produce energy in cells.

Q (17) : How do fish breathe?
Ans : Through gills that extract oxygen from water.

Q (18) : How do insects respire?
Ans : Using a system of tubes called tracheae.

Q (19) : How do amphibians breathe?
Ans : Through skin and lungs.

Q (20) : What is the main organ for breathing in humans?
Ans : The lungs.

Q (21) : What gas do we inhale?
Ans : Oxygen.

Q (22) : What gas do we exhale?
Ans : Carbon dioxide.

Q (23) : How do plants exchange gases?
Ans : Through small openings called stomata.

Q (24) : What is hemoglobin?
Ans : A protein in red blood cells that carries oxygen.

Q (25) : What happens when we breathe?
Ans : We inhale oxygen and exhale carbon dioxide.

Q (26) : What makes up the respiratory system?
Ans : Organs like the lungs, trachea, and diaphragm.

Q (27) : How does exercise affect breathing?
Ans : It increases the need for oxygen.

Q (28) : What happens to the respiration rate during exercise?
Ans : It increases to supply more oxygen.

Q (29) : What is the difference between breathing and respiration?
Ans : Breathing is the act of inhaling and exhaling; respiration is the chemical process of energy production.

Q (30) : How do bacteria respire?
Ans : They can respire either aerobically or anaerobically.

Q (31) : What is fermentation?
Ans : An anaerobic process that produces alcohol or acid.

Q (32) : Do plants respire at night?
Ans : Yes, they respire continuously, even without sunlight.

Q (33) : What is the main purpose of respiration?
Ans : To produce energy for cellular activities.

Q (34) : How does temperature affect respiration?
Ans : Higher temperatures can increase the rate of respiration.

Q (35) : What is oxygen debt?
Ans : The amount of oxygen needed to break down lactic acid after intense exercise.

Q (36) : How do birds breathe?
Ans : Using lungs and air sacs for efficient gas exchange.

Q (37) : What is the main byproduct of respiration?
Ans : Carbon dioxide.

Q (38) : What type of respiration do deep-sea organisms often use?
Ans : Anaerobic respiration due to low oxygen availability.

Q (39) : What happens to the energy produced during respiration?
Ans : It is used for various cellular functions.

Q (40) : How do plants store energy from respiration?
Ans : As glucose or starch.

Q (41) : What do decomposers do?
Ans : They break down dead organic matter, recycling nutrients.

Q (42) : How does respiration relate to climate change?
Ans : It releases carbon dioxide, a greenhouse gas.

Q (43) : What is the difference in efficiency between aerobic and anaerobic respiration?
Ans : Aerobic respiration is more efficient, producing more ATP per glucose molecule.

Q (44) : What role does the diaphragm play in breathing?
Ans : It contracts and relaxes to help move air in and out of the lungs.

Q (45) : How do mammals primarily get oxygen?
Ans : By inhaling it into their lungs.

Q (46) : What happens if an organism cannot respire?
Ans : It cannot produce energy and will die.

Q (47) : What adaptations do animals have for respiration?
Ans : Gills in fish, lungs in mammals, and tracheae in insects.

Q (48) : How does altitude affect respiration?
Ans : Higher altitudes have lower oxygen levels, making it harder to breathe.

Q (49) : What is the importance of respiration in ecosystems?
Ans : It recycles carbon and energy through food webs.

Q (50) : How does respiration and photosynthesis relate?
Ans : They are opposite processes; photosynthesis makes glucose, while respiration uses it.

Q (51) : What do aerobic organisms need to survive?
Ans : Oxygen.

Q (52) : What do anaerobic organisms prefer?
Ans : Environments without oxygen.

Q (53) : How does the body use lactic acid after exercise?
Ans : It converts it back to glucose when oxygen is available.

Q (54) : What is a respiratory surface?
Ans : An area where gas exchange occurs, like lungs or gills.

Q (55) : How do larger animals breathe efficiently?
Ans : They have specialized respiratory systems to meet higher oxygen demands.

Q (56) : What is the significance of respiration in plants?
Ans : It helps them grow and produce energy for cellular activities.

Q (57) : What are alveoli?
Ans : Tiny air sacs in the lungs where gas exchange occurs.

Q (58) : What is external respiration?
Ans : The exchange of gases between the atmosphere and blood in the lungs.

Q (59) : What is internal respiration?
Ans : The exchange of gases between blood and body cells.

Q (60) : How do some bacteria obtain energy?
Ans : By breaking down organic matter or inorganic compounds.

Q (61) : What is a byproduct of cellular respiration?
Ans : Water, along with carbon dioxide.

Q (62) : What do decomposers release during respiration?
Ans : Nutrients back into the soil.

Q (63) : How do plants use the oxygen produced during photosynthesis?
Ans : For respiration.

Q (64) : What role does respiration play in energy transfer?
Ans : It converts stored energy in food into usable energy.

Q (65) : How do amphibians breathe as larvae?
Ans : They typically use gills before developing lungs.

Q (66) : What are stomata?
Ans : Small openings on plant leaves for gas exchange.

Q (67) : What happens to the carbon dioxide produced in respiration?
Ans : It is released into the atmosphere or used by plants.

Q (68) : How does respiration contribute to body temperature?
Ans : Energy production generates heat.

Q (69) : What is the relationship between respiration and digestion?
Ans : Digestion breaks down food, providing glucose for respiration.

Q (70) : How do mammals adapt to low oxygen environments?
Ans : They may increase lung capacity or heart rate.

Q (71) : What is the role of enzymes in respiration?
Ans : They help speed up chemical reactions during energy production.

Q (72) : How do aquatic plants respire?
Ans : Through structures that allow gas exchange with water.

Q (73) : What can high levels of carbon dioxide indicate?
Ans : Poor air quality or high respiration rates.

Q (74) : How do respiration rates change with age?
Ans : They can decrease as metabolic rates decline.

Q (75) : What is the significance of the Krebs cycle?
Ans : It produces energy carriers used in aerobic respiration.

Q (76) : How do cold-blooded animals respire?
Ans : Their respiration rate may decrease in cooler temperatures.

Q (77) : What factors can affect respiration rates?
Ans : Activity level, temperature, and oxygen availability.

Q (78) : What happens during the process of glycolysis?
Ans : Glucose is broken down to produce energy.

Q (79) : How do cacti respire?
Ans : They open their stomata at night to reduce water loss.

Q (80) : What is the effect of pollutants on respiration?
Ans : They can harm respiratory systems in animals and humans.

Q (81) : How do parasites respire?
Ans : Many rely on their hosts for oxygen and nutrients.

Q (82) : What is the function of the trachea?
Ans : It transports air to and from the lungs.

Q (83) : How do some plants adapt to low oxygen?
Ans : They develop aerenchyma, which helps in gas exchange.

Q (84) : What is the significance of aerobic bacteria?
Ans : They help decompose organic matter and recycle nutrients.

Q (85) : How does the respiratory rate change during sleep?
Ans : It typically slows down.

Q (86) : What are some symptoms of respiratory distress?
Ans : Difficulty breathing, wheezing, or coughing.

Q (87) : How do mammals like whales respire?
Ans : They surface to breathe air through a blowhole.

Q (88) : What is the role of carbon dioxide in respiration?
Ans : It is a waste product that must be expelled from the body.

Q (89) : How do root cells in plants respire?
Ans : They use oxygen from the soil to break down sugars.

Q (90) : What are the effects of high carbon dioxide levels?
Ans : They can lead to acidification in water bodies.

Q (91) : How do terrestrial plants adapt to drought?
Ans : They may close stomata to conserve water, affecting respiration.

Q (92) : What is the importance of nitrogen in respiration?
Ans : It is not directly involved in respiration but is crucial for overall plant health.

Q (93) : How do reptiles breathe?
Ans : They use lungs, like mammals, but some can also absorb oxygen through their skin.

Q (94) : What role do red blood cells play in respiration?
Ans : They transport oxygen from the lungs to body tissues.

Q (95) : How do fungi respire?
Ans : They can respire aerobically or anaerobically, depending on the environment.

Q (96) : What is the primary function of the nasal passages?
Ans : To filter, warm, and humidify the air we breathe.

Q (97) : How do respiratory illnesses affect respiration?
Ans : They can obstruct airflow and reduce oxygen intake.

Q (98) : What is the connection between respiration and metabolism?
Ans : Respiration is a part of metabolism, providing energy for metabolic processes.

Q (99) : How do plants help improve air quality?
Ans : They absorb carbon dioxide and release oxygen during photosynthesis.

Q (100) : What is the importance of studying respiration in organisms?
Ans : It helps us understand how life functions and the interdependence of ecosystems.