CLASS – 7 Worksheet – 2 - Ch – 9 – Respiration in Organisms

Name _____- Roll _____

IV. Long Answer Type Questions:

Q1. Explain how a fish respires in water, with the help of gills.

Ans: Fish respire in water using special organs called gills. Gills are feathery structures located on either side of a fish's head and are rich in blood vessels. Here's how the process works:

a. Water Intake: The fish takes in water through its mouth.

b. Passing Over Gills: This water flows over the gill membranes where oxygen is dissolved in the water.

c. Oxygen Absorption: The oxygen diffuses from the water into the blood vessels present in the gills.

d. Carbon Dioxide Release: At the same time, carbon dioxide from the fish's blood diffuses out into the water, which then flows out of the gill openings

Q.2. Describe how exchange of gases takes place inside the human respiratory system.

Ans: Exchange of Gases in the Human Respiratory System

a. Inhalation of Air: When we breathe in, air enters through the nose, passes through the trachea, and reaches the lungs, ending in tiny air sacs called alveoli.

b. Gas Exchange in Alveoli: The walls of alveoli are thin and surrounded by a network of capillaries. Oxygen from the inhaled air diffuses through the alveolar walls into the blood in the capillaries.

c. Transport of Oxygen: The oxygen binds with hemoglobin in red blood cells and is transported to body tissues.

d. Removal of Carbon Dioxide: Carbon dioxide, a waste gas produced by cells, diffuses from the blood into the alveoli. It is then expelled out of the body during exhalation.

Q.3. What is the difference between aerobic and anaerobic respiration? Write the equations to show both the processes.

Ans:

Feature	Aerobic Respiration	Anaerobic Respiration
Location	Occurs in the mitochondria of cells	Occurs in the cytoplasm of cells
Oxygen Requirement	Requires oxygen	Does not require oxygen
End Products	Carbon dioxide (CO_2), water (H_2O), and energy (ATP)	Lactic acid (in animals) or ethanol and CO_2 (in yeast)
Energy Produced	High energy (ATP)	Low energy (ATP)
Equation	$C_6H_{12}O_6+6O_2 \rightarrow 6CO_2+6H_2O+\text{Energy (ATP)}$	$C_6H_{12}O_6 \rightarrow 2C_2H_5OH+2CO_2+$ Energy (in yeast)