Breathing & Exchange Of Gases

Very Short Answer Type Questions

1. Define the following terms?
   - a. Tidal volume
   - b. Residual volume
   - c. Asthma

2. A fluid filled double membranous layer surrounds the lungs. Name it and mention its important function.
3. Name the primary site of exchange of gases in our body?
4. Cigarette smoking causes emphysema. Give reason.
5. What is the amount of O_2 supplied to tissues through every 100 ml. of oxygenated blood under normal physiological conditions?
6. A major percentage (97%) of O_2 is transported by RBCs in the blood. How does the remaining percentage (3%) of O_2 transported?
7. Arrange the following terms based on their volumes in an ascending order
   - a. Tidal Volume (TV)
   - b. Residual Volume (RV)
   - c. Inspiratory Reserve Volume (IRV)
   - d. Expiratory Capacity (EC)

8. Complete the missing terms
   - a. Inspiratory Capacity (IC) = _____ +IRV
   - b. _____ = TV + ERV
   - c. Functional Residual Capacity (FRC) = ERV + _____

9. Name the organs of respiration in the following organisms:
   a. **Flatworm** - _____
   b. **Birds** - _____
   c. **Frog**- _____
   d. **Cockroach** - _____

10. Name the important parts involved in creating a pressure gradient between lungs and the atmosphere during normal respiration.

Short Answer Type Questions

1. State the different modes of CO_2 transport in blood.
2. Compared to O_2, diffusion rate of CO_2 through the diffusion membrane per unit difference in partial pressure is much higher. Explain.
3. For completion of respiration process, write the given steps in sequential manner
    - a. Diffusion of gases (O_2 and CO_2) across alveolar membrane.
    - b. Transport of gases by blood.
    - c. Utilisation of O_2 by the cells for catabolic reactions and resultant release of CO_2.
    - d. Pulmonary ventilation by which atmospheric air is drawn in and CO_2 rich alveolar air is released out.
    - e. Diffusion of O_2 and CO_2between blood and tissues.

4. Differentiate between
    - a. Inspiratory and expiratory reserve volume
    - b. Vital capacity and total lung capacity
    - c. Emphysema and occupational respiratory disorder

Long Answer Type Questions

1. Explain the transport of O2 and CO2 between alveoli and tissue with diagram.
2. Explain the mechanism of breathing with neat labelled sketches.
3. Explain the role of neural system in regulation of respiration.