Chapter- 17

BREATHING AND EXCHANGE OF GASES

VERY SHORT ANSWER QUESTIONS (1 mark)

01. Define breathing.
02. What prevents the collapse of the trachea, even if very little air is there?
03. What is the function of the pleural fluid? Where do we find it?
04. What is the partial pressure of a gas?
05. What are carbamino haemoglobin and oxyhaemoglobin?
06. Write the chemical reaction catalyzed by the Zn-enzyme carbonic anhydrase.
07. Name the parts of the brain that control breathing movements.
08. A blood vessel in the liver has blood with PO_2 of 45 mm Hg, which is much higher than the PO_2 of the tissue in the liver. Does the O_2 diffuse into the blood from the tissues or diffuse from the blood into the tissues?
09. Why does the exchange of respiratory gases continue to occur in the lungs even if you hold the breath for 30 seconds?
10. How many times does a normal healthy human breathe? Name the instrument used to measure the respiratory volumes?

SHORT ANSWER TYPE QUESTIONS (2 marks)

11. Differentiate between vital capacity and total lung capacity?
12. Where is the pneumotaxic centre located in humans? What is its significance in breathing?
13. How is residual volume different from functional residual capacity?
14. Expand - (a) IRV (b) ERV (c) FRC (d) IC
15. What is the total lung capacity? What is the average value of residual volume?
16. Name the major layers of the diffusion membrane. Name the carrier of CO_2.
17. Define the oxygen dissociation curve.

SHORT ANSWER TYPE QUESTIONS (3 marks)

18. Describe the process of gaseous exchange between alveoli of lungs and blood concerning the partial pressure of respiratory gases.
19. How is expiration carried out under normal physiological conditions?
20. Draw a labelled diagram of the human respiratory system with the diaphragm at the end of expiration.
21. (a) Name the conditions following the binding of O_2 and dissociation of O_2 (b) Name the muscles contract and relax during inspiration and expiration.
22. Differentiate breathing and respiration.
23. Give the values of each of the following (a) PO_2 of (i) alveolar air (ii) oxygenated blood (iii) Metabolically active tissue (b) PCO_2 of (i) alveolar air (ii) deoxygenated blood (iii) oxygenated blood.
24. (a) What is fibrosis in the lungs? How is it caused? (b) What is emphysema?

LONG ANSWER TYPE QUESTIONS (5 marks)

25. How is respiration regulated?
26. (a) Describe the role of haemoglobin in the transport of respiratory gases?
(b) What is the role of (i) Larynx (ii) Rings of cartilage in the trachea?
27. Describe the transport of CO_2 by haemoglobin.

HOTS/MODEL QUESTIONS:

01. What is dead space?
02. Where is enzyme carbonic anhydrase located?
03. What is the function of carbonic anhydrase?
04. What is Bohr's effect?
05. Define the Haldane effect.
06. Breathing through the nose is said to be healthier than through the mouth. Why?
07. What is the maximum number of molecules of O_2 which one molecule of haemoglobin can carry?
08. How is air cleared in the nasal chamber?
09. What is the name of space present in between the two vocal cords?
10. What is Adam's apple?
11. A lot of mucus is produced by the respiratory tract. Where does it go?