Chapter-06
BREATHING AND EXCHANGE OF GASES

Each question carry one score

1. Opening of trachea is called……
2. Each haemoglobin molecule can carry a maximum of ……..molecules of O2
   a)one b)Two c)Three d)Foure
3. Every 100 ml of oxygenated blood can deliver around ……..ml of O2 to the tissues under normal physiological conditions
   a)One b)Three c)Five d)Ten.
4. Find the relationship between the first pair and fill in the blank
   a)Heart: Pericardium ,
   Lungs :……..
   b)Heart Beat rate:72/minute :
   Breathing rate:…….
   c)Tidal Volume : 500ml
   Residual Volume :……..ml
5. A major percentage (97%) of 02 is transported by RBCs in the blood. How does the remaining percentage (3%) of 02 transported?
6. What amount of 0_2 supplied to tissues through every 100 mL of oxygenated blood under normal physiological conditions?
7. Mark the incorrect statement in context to Oxygen binding to Haemoglobin
   a)Higher pH
   b)Lower temperature
   c)Lower pCO_2
   d)Higher pO_2
8. Find the odd one and write the reason for selection
   a)Emphysema, Jaundice, Occupational Respiratory disorder, Asthma
   b)Diaphragm, Adominal muscle, Biceps, Intercostal muscles
9. Mark the correct pair of muscles involved in the normal breathing in humans
   (a)External and internal intercostal muscles
   (b)Diaphragm and abdominal muscles
   (c)Diaphragm and external intercostal muscles
   (d) Diaphragm and intercostal muscles
10. Common passage for both food and air is called……..
    a)Oral cavity b)Pharynx
    c)Trachea d)Oesophagus
11. A person suffers punctures in his chest cavity in an accident, without any damage to the lungs, its effect could be.
    a)Reduced breathing rate
    b) Rapid increase in breathing rate
    c) No change in respiration
    d) Cessation of breathing
12. Incidence of Emphysema—a respiratory disorder is high in cigarette smokers. In such cases
    (a)The bronchioles are found damaged
    (b)The alveolar walls are found damaged
    (c)The plasma membrane is found damaged
    (d)The respiratory muscles are found damaged
13. In breathing movements, air volume can be estimated by.
    (a) Stethoscope
    (b) Hygrometer
    (c) Sphygmomanometer
    (d) Spirometer

Each question carry two score

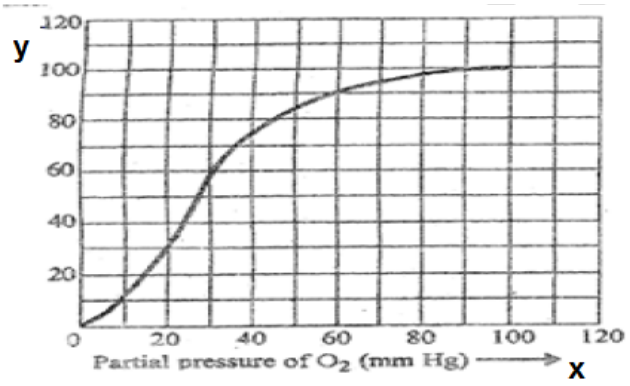
14. Breathing is the Exchange of oxygen from the atmosphere with Carbon dioxide produced by the cells
    a)Write any two muscles involved in breathing
    b)……is a a red coloured iron containing pigment present in the RBCs.
15. How entry of food into the glottis is prevented –during swallowing?
16. In certain industries, especially those involving grinding or stone breaking, so much dust is produced that the defense mechanism of the body cannot fully cope with the situation. Long exposure can give rise to inflammation leading to fibrosis (proliferation of fibrous tissues) and thus causing serious lung damage
    a)Name the disease

b) Write any one preventive measure to avoid it

17. Distinguish between the following terms :
Tidal volume, Residual volume

18. A fluid-filled double membranous layer surrounds the lungs. Name it and mention its important function.

19. In the given graph of oxygen, Haemoglobin dissociation curve 'X' axis denote partial pressure of oxygen. What does 'Y ' axis indicate ? write any 2 factors which affect the sigmoid curve ?



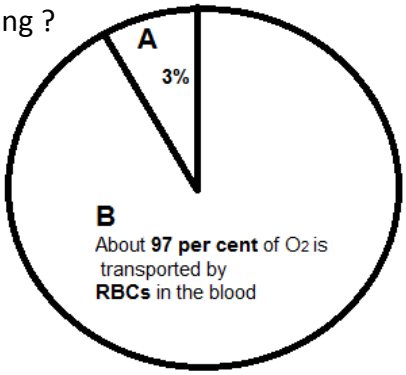
20. Write the function of the following
a)Epiglottis b)Diaphragm
c)Spirometer d)Pleura

21. List the major factors affecting the dissociation of oxygen from oxyhaemoglobin in the tissues?

22. Differentiate the process of inspiration and expiration.

Inspiration	Expiration
.....	.....
.....	.....

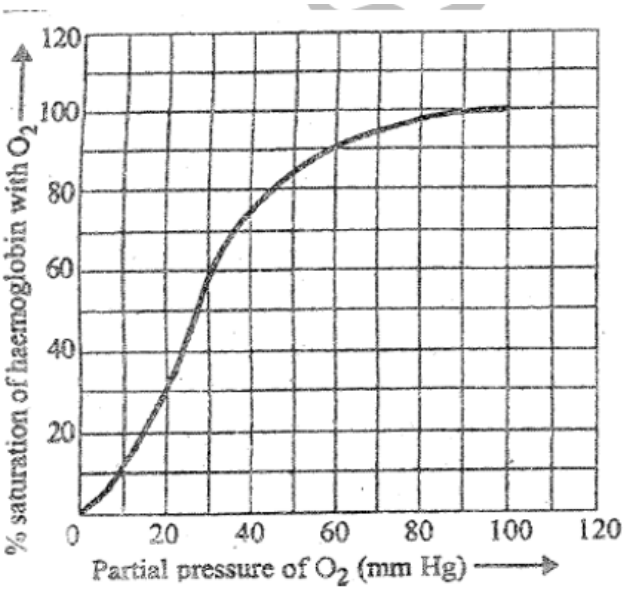
23. Diagrammatic representation of transport of O2 in man is given. Observe and answer the following ?



a)Name the method of O2 transport indicated as 'A'

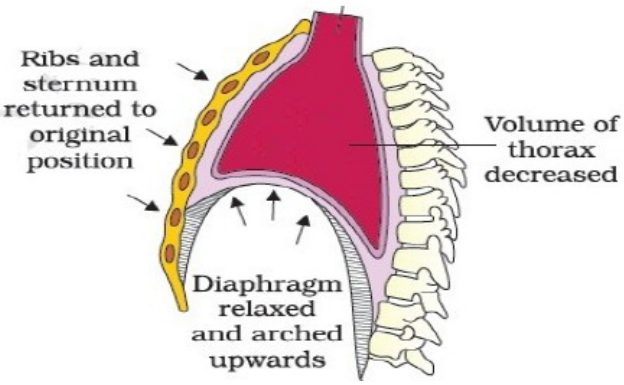
b)Write the name of Unstable compound formed when Haemoglobin bind with Oxygen

24. a) Identify the graph given below



b) List the factors responsible for the formation and dissociation of oxyhaemoglobin

25. A mechanism of breathing is shown below. Study the diagram



a) Write which process is mentioning here (Inspiration/Expiration).

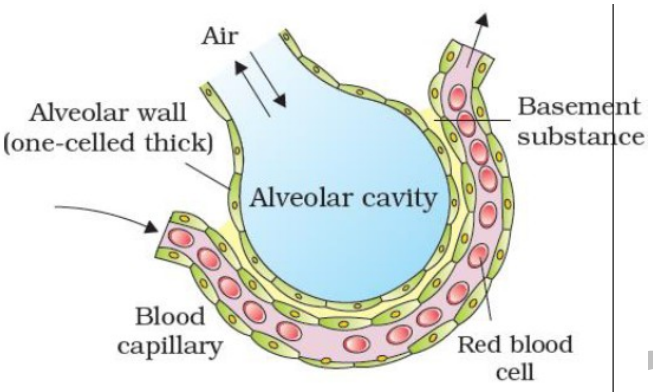
b) Where you can find intercostals muscles in human body.

26. "In the tissues, the conditions are favorable for dissociation of oxygen from the oxyhaemoglobin '' Write any four favourable conditions in the tissues for the dissociation of O2 from oxyhaemoglobin

27. Write one word for the following
a) Volume of air inspired or expired during a normal respiration
b) Volume of air remaining in the lungs even after a forcible expiration.

28. Asthma and emphysema are two disorders of human respiratory system, mention their causes and symptoms?

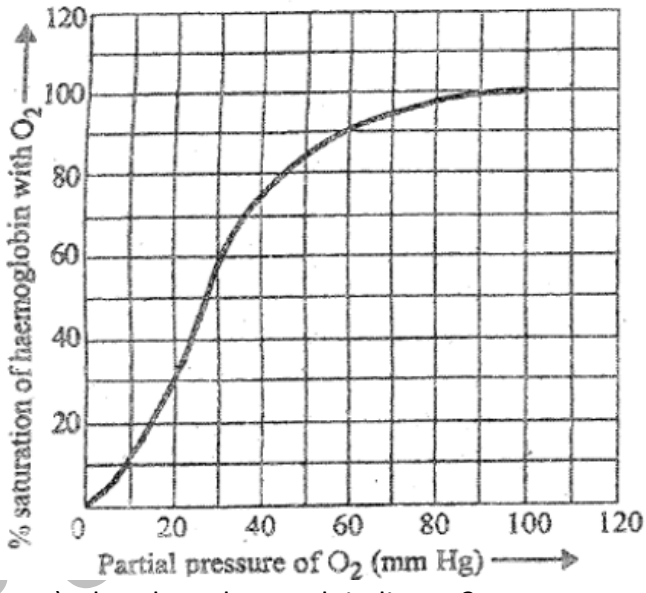
29. Blood transports O_2 from Alveolus to tissues by Two methods. Explain
30. Identify the two true statements from the statement given below and rewrite the two false statement correctly
    a)Pneumonia is a chronic diosrder due to cigarette smoking
    b)O2 combine with Hb to form carbamino hameoglobin
    c)Human lung is covered by a single walled membrane called pleura
    d)Alveoli are the primary sites of exchange of gases
31. Observe the diagram and answer the folllowing question



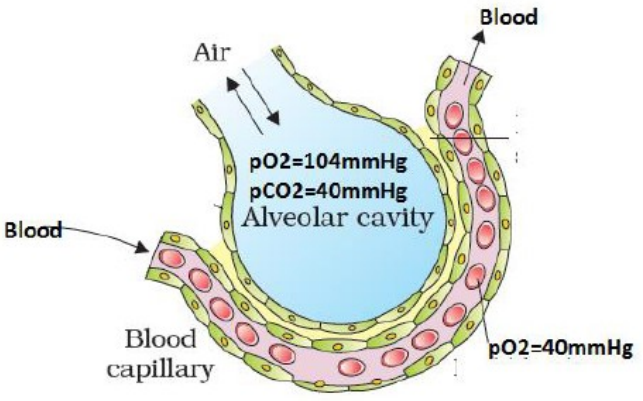
    a)Name the biological process involved in the gas exchange shown in the figure?
    b)How the oxygen is transported to the cells from the alveoli?
32. Oxyhaemogloin is formed when pO_2 is high. But oxyhaemogloin dissociate when the pCO_2 is high, High H+ concentration and high temperature.
    Write what happens to oxyhaemoglobin in the alveoli and body tissues
33. Rewrite the given sentences if there is any mistake in the underlined part
    a)<u>An increase in pulmonary volume</u> decreases the intra-pulmonary pressure to less than the atmospheric pressure which forces the air from outside to move into the lungs, i.e., inspiration.
    b)We have the ability to increase the strength of inspiration and expiration with the help of additional muscles in the <u>intercostals muscle</u>
    c) Haemoglobin is a red coloured iron containing pigment present in the <u>WBCs.</u>
    d) Volume of air remaining in the lungs even after a forcible expiration is called <u>Residual Volume.</u>

Each question carry three score

34. Carefully observe the given sigmoid curve on the graph and answer the following questions



    a)What does the graph indicates?
    b) What are the 3 factors affecting the sigmoid patterns of the graph?
    c) What will be the percentage saturation of Haemoglobin with oxygen when partial pressure of oxygen is 30mmHg
35. Observe the Figure and answer the question



    a)What is the partial pressure of Oxygen in the alveolar capillary?
    b)Name the biological principles involved in the exchange of gases in the above structure?

c)What happen when partial pressure of oxygen becomes same in the alveoli and alveolar capillary?

36. For completion of respiration process, write the given steps in sequential manner.

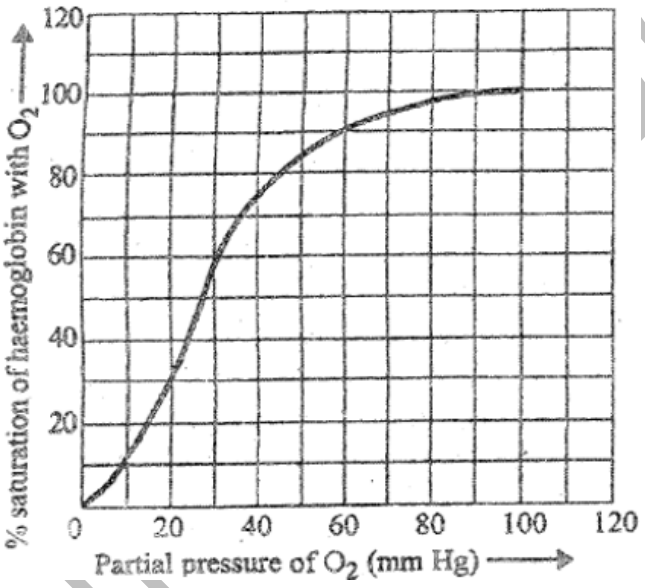
1. Diffusion of gases (0_2 and $C0_2$) across alveolar membrane.
2. Transport of gases by blood.
3. Utilisation of 0_2 by the cells for catabolic reactions and resultant release of $C0_2$.
4. Pulmonary ventilation by which atmospheric air is drawn in and $C0_2$ rich alveolar air is released out.
5. Diffusion of 0_2 and $C0_2$ between blood and tissues.

37. Observe the graph

a)Identify the pO2 where 50% saturation of Hb with oxygen

b)Mention the factors favorable for the formation of oxyhaemoglobin in alveoli

c)What is the significance of this graph-Oxygen dissociation curve



38. Define the following terms

a. Tidal volume

b. Residual volume

c. Asthma