CHAPTER-6-RESPIRATION

Evaluation

1. Breathing is controlled by
a. cerebrum **b. medulla oblongata** c. cerebellum d. pons

2. Intercostal muscles are found between the
a. vertebral column b. sternum **c. ribs** d. glottis

3. The respiratory structures of insectsare
a. tracheal tubes b. gills c. green glands d. lungs

4. Asthma is caused due to
a. bleeding in pleural cavity. b. infection of nose
c. damage of diaphragm. **d. infection of lungs**

5. The Oxygen Dissociation Curve is
a. sigmoid b. straight line
c. curved d. rectangular hyperbola

6. The Tidal Volume of a normal person is
a. 800 mL b. 1200 mL **c. 500 mL** d. 1100 – 1200 Ml

7. During inspiration, the diaphragm
a. expands. b. unchanged
c. relaxes to become domed–shaped. **d. contracts and flattens**

8. CO_2 is transported through blood to lungs as
a. carbonic acid b. oxyhaemoglobin
c. carbamino haemoglobin d. carboxy haemoglobin

9. When 1500 mL air is in the lungs, it is called
a. vital capacity b. tidal volume
c. residual volume d. inspiratory reserve volume

10. Vital capacity is
a. TV + IRV b. TV + ERV c. RV + ERV **d. TV + IRV + ERV**

11. After a long deep breath, we do not respire for some seconds due to
a. more CO_2 in the blood **b. more O_2 in the blood**
c. less CO_2 in the blood d. less O_2 in the blood

12. Which of the following substances in tobacco smoke damage the gas exchange system?
a. carbon monoxide and carcinogens b. carbon monoxide and nicotine
c. carcinogens and tar d. nicotine and tar

13. Column I represents diseases andcolumn II represents their symptoms.Choose the correctly paired option

Column I	**Column II**
(P) Asthma	(i) Recurring ofbronchitis
(Q) Emphysema	(ii) Accumulation of W.B.CS in alveolus
(R) Pneumonia	(iii) Allergy

a. P = iii, Q = ii, R = I b. P = iii, Q = i, R = ii
c. P = ii, Q = iii, R = I d. P = ii, Q = i, R = iii

14. Which of the following best describes the process of gas exchange in the lungs?
a. Air moves in and out of the alveoliduring breathing.
b. Carbon dioxide diffuses fromdeoxygenated blood in capillariesinto the alveolar air.
c. Oxygen and carbon dioxide diffuse down their concentration gradients between blood and alveolar air.
d. Oxygen diffuses from alveolar airinto deoxygenated blood.

15. Make the correct pairs.

Column–I	**Column–II**
(P) IC	i. maximum volume of air breathes in after forced.

(Q) EC ii. Volume of air present after expiration in lungs.
(R) VC iii. Volume of air inhaled after expiration.
(S) FRC iv. Volume of air exhaled after inspiration.
(a) P – i , Q – ii , R – iii , S – iv (b) P – ii , Q – iii , R – iv , S – i
(c) P – ii , Q – iii , R – i , S – iv **(d) P – iii , Q – iv , R – i , S – ii**

16. Make the correct pairs.

Columan–I	**Column–II**
(P) Tidal volume	i. 1000 to 1100 ml
(Q) Residualvolume	ii. 500 ml
(R) Expiratoryreservevolume	iii. 2500 to 3000 ml
(S) Inspiratory reserve volume	iv. 1100 to 1200 ml

(a) P – ii , Q – iv , R – i , S – iii (b) P – iii , Q – ii , R – iv , S – i
(c) P – ii , Q – iv , R – iii , S – I (d) P – iii , Q – iv , R – i , S – ii

17.Name the respiratory organs of flatworm, earthworm, fish, prawn, cockroach and cat.

1.flatworm -Body surface by simple diffusion
2.earthworm -Moist Skin
3.fish -Gills
4.prawn -Gill chamber
5.cockroach -Tracheal tubes
6. cat -Lungs

18.Name the enzyme that catalyses the bicarbonate formation in RBCs.

Carbonic anhydrase

19.Air moving from the nose to the trachea passes through a number of structures. List in order of the structures.

external nostrils→ nasal cavity→ the pharynx→ the larynx→ the trachea→the bronchi → bronchioles → the lungs

20.Which structure seals the larynx when we swallow?

During swallowing a thin elastic flap called epiglottis prevents the food from entering into the larynx and avoids choking of food.

21.Resistance in the airways is typically low. Why? Give two reasons.

1.The diameters of most airways are relatively large
2.Air has a low viscosity.

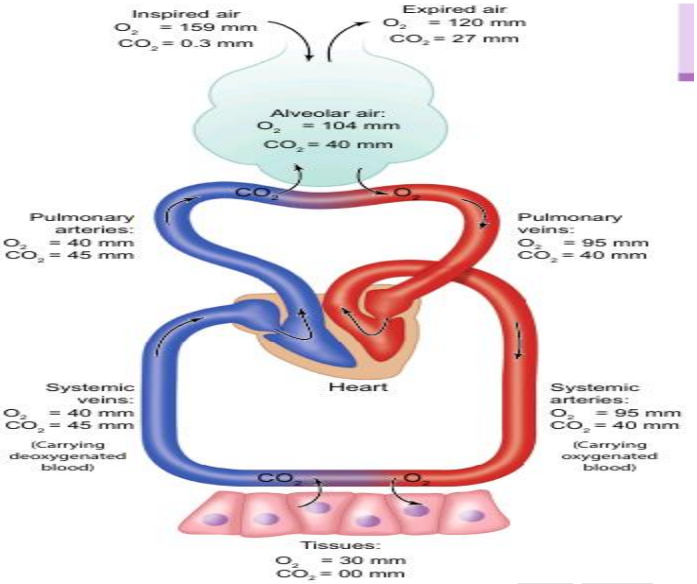
-**Airway resistance** is increased at **low** lung volumes due to**reduced airway** diameter and at **high** gas-flow rates due to turbulent flow (e.g., during forced expiration).
- Diseases in which **airway** narrowing occurs, such as chronic obstructive pulmonary disease and asthma, increase **airway resistance**.

22.How the body makes long–term adjustments when living in high altitude.

-When a person travels quickly from sea level to elevations above 8000ft, where the atmospheric pressure and partial pressure of oxygen are lowered, the individual responds with symptoms of acute mountain sickness (AMS)–headache, shortness of breath, nausea and dizziness due to poor binding of O2 with haemoglobin.
-When the person moves on a long–term basis to mountains from sea level is body begins to make respiratory and haematopoietic adjustments.
-To overcome this situation kidneys accelerate production of the hormone erythropoietin, which stimulates the bone marrow to produce more RBCs.

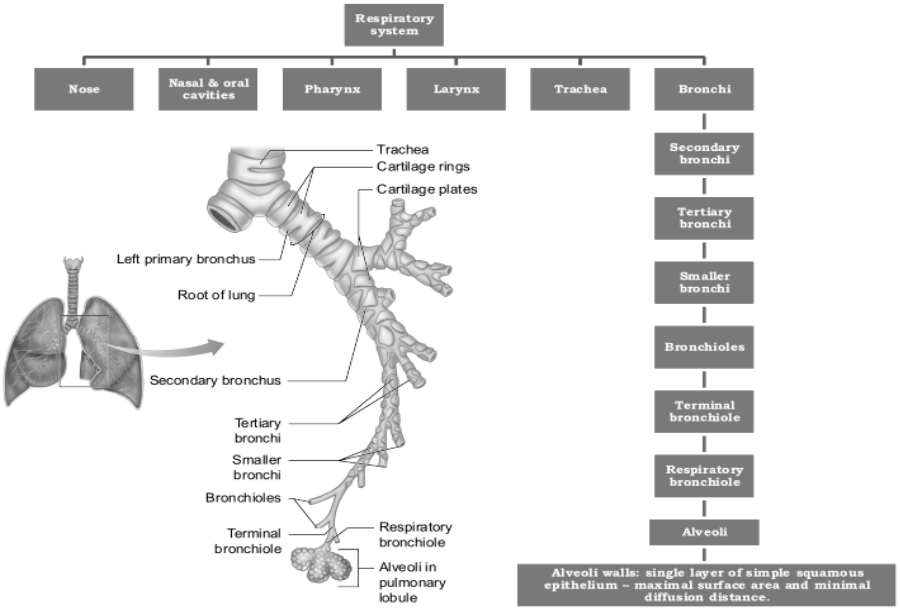
23.Diffusion of gases occurs in the alveolar region only and not in any other part of the respiratory system. Discuss.

-The primary site for the exchange of gases is the alveoli.
-The uptake of O2 and the release of CO2 occur between the blood and tissues by simple diffusion driven by partial pressure gradient of O2 and CO2.
-Partial pressure is the pressure contributed by an individual gas in a mixture of gases.



-It is represented as pO2 for oxygen and pCO2 for carbon– dioxide.
-Due to pressure gradients, O2 from the alveoli enters into the blood and reaches the tissues.
-CO2 enters into the blood from the tissues and reaches alveoli for elimination.
-As the solubility of CO2 is 20–25 times higher than that of O2, the partial pressure of CO2 is much higher than that of O2

24.Sketch a flow chart to show the path way of air flow during respiration.



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25.Why is pneumonia considered a dangerous disease?

-Inflammation of the lungs due to infection caused by bacteria or virus is called pneumonia.
-The common symptoms are sputum production, nasal congestion, shortness of breath, sore throat, etc.
-Bacterial **pneumonia is** usually more **serious** as it causes more severe symptoms.
-However, viral **pneumonia** caused by the flu **virus** can be life-threatening as well if it triggers a particularly severe inflammation of the lungs or is complicated by a secondary bacterial infection.

26.Explain the conditions which creates problems in oxygen transport.

When a person travels quickly from sea level to elevations above 8000ft, where the atmospheric pressure and partial pressure of oxygen are lowered, the individual responds with symptoms of acute mountain sickness (AMS)–headache, shortness of breath, nausea and dizziness due to poor binding of O2 with haemoglobin.

When the person moves on a long–term basis to mountains from sea level is body begins to make respiratory and haematopoietic adjustments.

To overcome this situation kidneys accelerate production of the hormone erythropoietin, which stimulates the bone marrow to produce more RBCs.

When a person descends deep into the sea, the pressure in the surrounding water increases which causes the lungs to decrease in volume.

This decrease in volume increases the partial pressure of the gases within the lungs.

This effect can be beneficial, because it tends to drive additional oxygen into the circulation, but this benefit also has a risk, the increased pressure can also drive nitrogen gas into the circulation.

This increase in blood nitrogen content can lead to a condition called **nitrogen narcosis.**

When the diver ascends to the surface too quickly a condition called 'bends' or decompression sickness occurs and nitrogen comes out of solution while still in the blood forming bubbles.

Small bubbles in the blood are not harmful, but large bubbles can lodge in small capillaries, blocking blood flow or can press on nerve endings.

Decompression sickness is associated with pain in joints and muscles and neurological problems including stroke.

The risk of nitrogen narcosis and bends is common in scuba divers.

During carbon–dioxide poisoning, the demand for oxygen increases. As the O2 level in the blood decreases it leads to suffocation and the skin turns bluish black.

CHAPTER-7 BODY FLUIDS AND CIRCULATION

Evaluation

1.What is the function of lymph?

(a) Transport of O_2 into brain (b) Transport of CO_2 into lungs

(c) Bring interstitial fluid in blood (d) Bring RBC and WBC in lymph node

2.Which one of the following plasma proteins is involved in the coagulation of blood?

(a) Globulin **(b) Fibrinogen** (c) Albumin (d) Serum amylase

3.Which of the following WBCs are found in more numbers?

(a) Eosinophil **(b) Neutrophil** (c) Basophil (d) Monocyte

4.Which of the following is not involved in blood clotting?

(a) Fibrin (b) Calcium (c) Platelets **(d) Bilirubin**

5.Lymph is colourless because

(a) WBC are absent (b) WBC are present

(c) Haemoglobin is absent **(d) RBC are absent**

6.Blood group is due to the presence or absence of surface

(a) Antigens on the surface of WBC (b) Antibodies on the surface of RBC

(c) Antigens of the surface of RBC (d) Antibodies on the surface of WBC

7.A person having both antigen A and antigen B on the surface of RBCs belongs to blood group

(a) A (b) B **(c) AB** (d) O

8.Erythroblastosisfoetalis is due to the destruction of

(a) Foetal RBCs (b) Foetus suffers from atherosclerosis

(c) Foetal WBCs (d) Foetus suffers from minamita

9.Dub sound of heart is caused by

(a) Closure of atrio-ventricular valves (b) Opening of semi-lunar valves

(c) Closure of semi-lunar values (d) Opening of atrio-ventricular valves.

10Why is the velocity of blood flow the lowest in the capillaries?