



## BIOLOGY

### BOOKS - CENGAGE BIOLOGY (ENGLISH)

### BREATHING AND EXCHANGE OF GASES

#### Exercises

1. Which of the following structure is not supported by in complete cartilaginous rings.

A. Trachea

B. Secondary bronchi

C. Terminal bronchioles

D. Primary bronchi

**Answer: C**



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2. Trachea is a straight tube extending up to the mid-thoracic cavity, which divides at the level of

A. Second cervical vertebra

B. Fifth cervical vertebra

C. Fifth thoracic vertebra

D. Fifth lumbar vertebra.

**Answer: C**



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**3. Outer pleural membrane is in close contact with**

- A. Surface of lungs
- B. Thoracic cavity
- C. Both (1) and (2)
- D. Alveoli

**Answer: B**



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4. The volume of air present in the lungs after forceful expiration is called as

- A. Expiratory reserve volume
- B. Expiratory capacity
- C. Residual volume
- D. Both (1) and (2)

**Answer: C**



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5. The maximum volume of air a person can breathe in after a forced expiration is



A. vital capacity

B.  $ERV+TV+IRV$

C.  $TLC+RV$

D. Both A and B

**Answer: D**



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**6. Which of the following statement is incorrect w.r.t the mechanism of breathing?**

A. The movement of air into and out of the lungs is carried out by creating a pressure gradient

between the lungs and atmosphere.

B. Inspiration is initiated by the contraction of diaphragm which increases the volume of thoracic chamber.

C. The contraction of external intercostal muscles lifts up the ribs and sternum causing decrease in the volume of thoracic chamber.

D. On an average, a healthy human breathes 12-16 times/ min.

**Answer: C**



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7. The thoracic cage of man is formed of

- A. Ribs and sternum
- B. Ribs, sternum and thoracic vertebrae
- C. Ribs , sternum, and lumbar vertebrae
- D. Ribs and thoracic vertebrae

**Answer: B**



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8. Trachea is lined with incomplete rings of

- A. Fibrous cartilage

B. Calcified cartilage

C. Elastic cartilage

D. Hyaline cartilage

**Answer: D**



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**9.** Lungs have a large number of alveoli for

A. Having spongy texture and proper shape

B. More surface area for diffusion of gases

C. More space for increasing volume of inspired air

D. More nerve supply.

**Answer: B**



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**10.** The ventilation movements of the lungs in mammals are governed by

- A. Muscular wall of lungs
- B. Intercostal muscles
- C. Disphragm
- D. Diaphragm and intercostal muscles.

**Answer: D**



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11. What will be the  $pO_2$  and  $pCO_2$  in the atmospheric air compared to those in the alveolar air?

- A.  $pO_2$  lesser ,  $pCO_2$  higher
- B.  $pO_2$  higher ,  $pCO_2$  lesser
- C.  $pO_2$  higher,  $pCO_2$  higher
- D.  $pO_2$  lesser ,  $pCO_2$  lesser

**Answer: B**



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12. What is the partial pressure of oxygen and carbon dioxide in atmospheric air ?

A.  $p_{O_2}$  159 mm Hg,  $p_{CO_2}$  0.3 mm Hg

B.  $p_{O_2}$  104 mm Hg,  $p_{CO_2}$  40 mm Hg

C.  $p_{O_2}$  40 mm Hg,  $p_{CO_2}$  45 mm Hg

D.  $p_{O_2}$  95 mm Hg,  $p_{CO_2}$  40 mm Hg

**Answer: A**



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13. Diffusion membrane is made up of which of the following layers

A. Thin squamous epithelium of alveoli

B. Basement membrane

C. Endothelium of alveolar capillaries

D. All of these

**Answer: D**



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**14.** Which of the following statement is incorrect about the transport of gases ?

A. About 97% of  $O_2$  is transported by RBCs in the blood.



B. About 3% of  $O_2$  is carried in dissolved state in the plasma

C. About 20-25% of  $CO_2$  is transported by RBCs.

D. About 70% carbon dioxide is carried in dissolved state in plasma.

**Answer: D**



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**15.** Binding of oxygen with haemoglobin is primarily related to :

A. Partial pressure of  $CO_2$

B. Partial pressure of  $O_2$

C. Hydrogen ion concentrated

D. Temperature

**Answer: B**



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**16.** Which of the following factors are favorable for the formation of oxyhemoglobin ?

(a) High  $p_{O_2}$ , low  $p_{CO_2}$

(b) Lesser  $H^+$  concentration, lower temperature

(c) Low  $p_{O_2}$ , high  $CO_2$

(d) High  $H^+$ , higher temperature

A. (a) only

B. (a) and (b)

C. (b) and (c)

D. (c) and (d)

**Answer: B**



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**17.** Under which condition the oxygen dissociation curve will move towards the right?

A. Low  $p_{O_2}$

B. High  $CO_2$

C. High  $H^+$  concentrated and higher temperature

D. All of these

**Answer: D**



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**18.** Tick mark of incorrect statement .

A. Every 100 mL of deoxygenated blood delivers approximately 4 mL of  $CO_2$  to the alveoli.

B. Carbonic anhydrase is present in very high concentration in RBC.

C. High  $p_{CO_2}$  and low  $p_{O_2}$  in tissue help in the binding of carbon dioxide.

D.  $CO_2$  is carried in hemoglobin as carboxyhemoglobin.

**Answer: D**



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**19.** Carbon dioxide is carried in the blood mainly as

A. Sodium bicarbonate

B. Potassium bicarbonate

C. Carbamino- hemoglobin

D. Dissolved gas in plasma.

**Answer: A**



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**20.** The hemoglobin of a human fetus.

A. Has higher affinity for oxygen than that of an adult

B. Has a lower affinity for oxygen than that of an adult

C. Has same affinity for oxygen as that of an adult

D. Has two protein sub- units instead of four.

**Answer: A**



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**21. Ring - like cartilage of larynx is known as**

- A. Thyroid cartilage
- B. Arytenoid cartilage
- C. Cricoid cartilage
- D. Cartilage of Santorini

**Answer: C**



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22. Which of the following prevent collapsing of trachea?

A. Muscles

B. Diaphragm

C. Ribs

D. Cartilaginous rings.

**Answer: D**



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23. Trachea is lined with incomplete rings of

A. Fibrous cartilage



B. Calcified cartilage

C. Elastic cartilage

D. Hyaline cartilage

**Answer: D**



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**24.** The number of alveoli in the human lungs has been estimated to be approximately

A. 100 million

B. 300 million

C. 125 million

D. 300 billion

**Answer: B**



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**25.** In human beings oblique fissures are found in

A. Right lung

B. Left lung

C. Both of these

D. None of these

**Answer: C**



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26. The covering of lungs is called

- A. Pericardium
- B. Perichondrium
- C. Pleural membrane
- D. Peritoneum

**Answer: C**



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27. The terminal bronchiole is lined by

- A. Simple squamous epithelium
- B. Ciliated columnar or cuboidal epithelium
- C. Stratified epithelium
- D. Pseudostratified epithelium

**Answer: B**



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**28.** Which of the following muscles contracts during normal expiration ?

- A. Internal intercostal muscles
- B. Diaphragm

C. Abdominal muscles

D. None of these

**Answer: D**



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**29.** Chest movement are inconspicuous during

A. Normal breathing

B. Abdominal breathing

C. Thoracic breathing

D. Both (1) and (2)

**Answer: D**



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**30. Tidal volume is**

- A. The volume of air breathed in our out in one normal inspiration/ expiration
- B. Volume of air breathed out by forced expiration after normal inspiration
- C. Volume of air breathed out by forced expiration after forced inspiration

D. Volume of air that remains in lungs even after maximum expiration

**Answer: A**

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**31.** Which of the following pulmonary volume cannot be measured by spirometer directly ?

- A. Tidal volume
- B. Vital capacity
- C. Inspiratory capacity
- D. Residual volume.

**Answer: D**



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**32. Ribs move outward during respiration with**

- A. Intercostal muscles
- B. Petrohyal muscles
- C. Pharyngeal muscles
- D. None of these

**Answer: A**



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**33. Functional residual capacity (FRC) includes**

(a) TV (b) IRV

( c) RV (d) ERV

A. (a)+( c)

B. (b) +(d)

C. ( c)+(d)

D. (a)+(b)+(d)

**Answer: C**



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**34.** If a person exhales out forcefully by applying all his efforts. What will the pulmonary volume inhaled by him immediately under normal condition without applying any extra effort?

A. TV+IRV

B. TV only

C. TV+ERV

D. TV+IRV+ERV

**Answer: C**



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35. The  $p_{CO_2}$  level in the expired air under normal condition is approximately

- A. 46 mm of Hg
- B. 100 mm of Hg
- C. 32 mm of Hg
- D. 116 mm of Hg

**Answer: C**

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36. Which of the following factors will decrease oxygenation ?

A. High Hb

B. Increased blood flow

C. Anemia

D. Increased blood volume

**Answer: C**



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**37. Which statement is wrong ?**

A. The partial pressure of  $CO_2$  ( $p_{CO_2}$ ) is higher in the air inside the lungs than inside the venous blood.

B. The partial pressure of  $O_2(p_{O_2})$  is higher in the air inside the lungs than in the arterial blood.

C. The partial pressure of  $O_2(p_{O_2})$  is lower inside the venous blood than in the air in the lung

D. The partial pressure of  $CO_2(p_{CO_2})$  is higher inside the venous blood than in the air.

**Answer: A**



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**38.** The exchange of gases between blood capillaries and alveoli in the lung is through

A. Osmosis

B. Active transport

C. Absorption

D. Diffusion

**Answer: D**



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**39.** The amount of oxygen transported by 100ml of blood under strenuous condition is approximately

A. 5 mL

B. 50 mL

C. 15 mL

D. 150 mL

**Answer: D**



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**40.** In alveoli, surfactant is produced by

A. Type I pneumocyte

B. Type II pneumocyte

C. Kuffer's cells

D. Dust cells

**Answer: B**



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41. The combination of  $O_2$  with hemoglobin can be increased mostly by

- A. Increasing  $O_2$  concentrated in air
- B. Decreasing  $O_2$  concentrated in blood.
- C. Increasing  $CO_2$  concentration in air
- D. Decreasing  $CO_2$  concentration in blood.

**Answer: D**



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42. The effect of  $CO_2$  concentration on dissociation of oxyhemoglobin was explained by

A. G.S Carter

B. Yapp

C. William Hoar

D. Christian Bohr.

**Answer: D**



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43. Dissociation curve shifts to the right when

A. Acidity

B. Carbon dioxide concentration

C. Temperature

D. pH

**Answer: D**



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**44.** If  $CO_2$  level gets increased in the blood, it favours

A. (a) Loading of  $O_2$  in the blood

B. (b) Unloading of  $O_2$  from the blood

C. (c) Decreased availability of oxygenated to tissues

D. (d) Both (a) and (c)

**Answer: B**



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**45.** If oxyhemoglobin dissociation curves are drawn for maternal and fetal hemoglobin, which of the following is true ?

- A. Maternal curve will be on the right side
- B. Fetal curve will be on the right side
- C. Both will overlap each other
- D. It will depend upon  $P_{CO_2}$  level

**Answer: A**



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**46.** Reverse of the chloride shifts occurs during

- A. Internal respiration
- B. External respiration
- C. Cellular respiration
- D. Anaerobic respiration

**Answer: B**



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47. The percentage amount of  $CO_2$  carried or transported by Hb is

- A. 0.1
- B. 0.8
- C. 0.7
- D. 0.23

**Answer: D**



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48. In the process of transport of  $CO_2$ , which phenomenon occurs between RBCs and plasma ?

A. (a) Osmosis

B. (b) Adsorption

C. (c) Chloride shift

D. (d) Absorption

**Answer: C**



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**49.** Which of the following can be termed as opposite of Bohr's effect?

A. Haldane's effect

B. Hamburger's phenomenon

C. Hering-Breuer reflex

D. None of these

**Answer: A**



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**50.** The impulse for voluntary muscles for forced breathing starts in

A. Cerebellum

B. Medulla

C. Vagus nerve

D. Cerebrum

**Answer: D**



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**51. Respiratory control centre is present in**

- A. Pons
- B. Medulla oblongata
- C. Cerebrum
- D. Both (1) and (2)

**Answer: D**



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52. Which of the following statement is wrong ?

- A. The inspiration center increases the strength of contraction of rib muscles.
- B. The pneumotaxic centre controls the switch off point of inspiration .
- C. Breathing movements are caused by change in concentration of  $CO_2$  in the blood.
- D. The expiratory center lies in pons and inspiratory center lies in medulla.

**Answer: D**



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53. Which centre controls the switch off point of inspiration?

- A. Apneustic center
- B. Pneumotaxic center
- C. Pons varolii
- D. Cerebrum

**Answer: B**



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54. Which of the following is not possible when pneumotaxic center is sending a strong signal ?

- A. Rate of breathing increases
- B. Complete filling of lungs
- C. Decreased duration of inspiration
- D. Decreased duration of expiration

**Answer: B**



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55. Overstretching of the lungs is prevented due to

- A. Bohr's effect
- B. Hering - Breuer reflex.
- C. Conditioned reflex
- D. Haldane's effect

**Answer: B**



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**56.** The rate and depth of respiration shall increase when

- A. Oxygen concentration increases
- B.  $CO_2$  concentration increases in alveolar air
- C. Bicarbonate concentration increases

D. Bicarbonate concentration decreases.

**Answer: B**



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57. The "mountain sickness" in persons climbing to high altitudes with any aid of oxygen cylinders is due to

A. (a) Anemic hypoxia

B. (b) Arterial hypoxia

C. (c) Lack of sufficient amount of hemoglobin

D. (d) Lack of sufficient number of erythrocytes.

**Answer: B**



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58. Cyanide poisoning will lead to

- A. Hypoxic hypoxia
- B. Histotoxic hypoxia
- C. Stagnant hypoxia
- D. Anemic hypoxia

**Answer: B**



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59. Asthma is a respiratory disease caused by:

- A. Infection of trachea
- B. Infection of lungs
- C. Bleeding into pleural cavity
- D. Spasm in bronchial muscles.

**Answer: D**



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**60.** Which of the following is related to occupational lung disease ?

- A. (a) Silicosis
- B. (b) Asbestosis

C. (c) Fibrosis of the upper part of lung

D. (d) All of these

**Answer: D**



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**61.** Breakdown of alveoli of lungs resulting in the reducing surface area for gas exchange is known as

A. Emphysema

B. Sneezing

C. Pneumonia

D. Tuberculosis.



**Answer: A**



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**62.** If thorax is injured and pleura damaged, the air enter the pleural cavity and the lungs are collapsed. This condition is known as

- A. Hyponea
- B. Orthopnea
- C. Dyspnea
- D. Pneumothorax

**Answer: D**



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**63.** Protective respiratory blast is

A. Hiccupping

B. Coughing

C. Sneezing

D. None of these

**Answer: C**



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**64.** Low oxygen tension in the blood causes

A. Coughing

B. Hiccups

C. Sneezing

D. Yawning.

**Answer: D**



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**65.** Disorder/disease related with bubbling of  $N_2$  in the blood resulting in pain or severe problem is

A. Caisson's disease

B. Cheyne-stokes respiration

C. Hypopnea

D. Asthma

**Answer: A**



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**66.** With the increase of temperature, the respiratory rate will

A. Increase

B. Decrease rapidly

C. Remain unaffected

D. Decrease slowly.

**Answer: A**



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**67.** Which of the following gases makes the most stable combination with the haemoglobin of RBCs?

A. (a)  $CO_2$

B. (b)  $CO$

C. (c)  $O_2$

D. (d)  $N_2$

**Answer: B**



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68. One of the following is not a respiratory pigment.

- A. (a) Hemoglobin
- B. (b) Chlorocruorin
- C. (c) Hemocyanin
- D. (d) Hemozoin

**Answer: D**



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69. Pneumonia can be caused by

A. Bacteria ( *Streptococcus pneumoniae* )

B. Protozoan

C. Fungi

D. All of these

**Answer: D**



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**70.** Asbestosis or silicosis is characterized by the proliferation of fibrous tissue in

A. Respiration tract

B. Upper part of lung

C. Lower part of lung

D. Pulmonary cappilary

**Answer: B**



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**71. Respiratory system is derived from**

A. Endoderm

B. Mesoderm

C. Ectoderm

D. None of these



**Answer: A**



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**72. Which of the following is false ?**

- A. Blood from the right side of heart is carried to lungs by pulmonary artery.
- B. Pleura is double covering of kidney .
- C. Pancreas is both exocrine and endocrine gland.
- D. Scurvy is due to vitamin C deficiency.

**Answer: B**



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73. Pleural fluid is secreted by

- A. Myocardium
- B. Parietal Pleura
- C. Visceral Pleura
- D. Both 2 and 3

**Answer: C**



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74. vocal cords are situated at

A. Larynx

B. Pharynx

C. Glottis

D. Bronchial tube

**Answer: A**



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**75.** Body tissues obtain oxygen from haemoglobin because of its dissociation in tissues caused by

A. Low oxygen concentration and high carbon dioxide concentration

B. Low oxygen concentration

C. Low carbon dioxide concentration

D. High carbon dioxide concentration

**Answer: D**



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**76.** Which energy is consumed in breathing?

A. Mechanical

B. Chemical

C. Bioelectrical

D. Physical

**Answer: B**



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77. During inspiration, the diaphragm

- A. Relaxes
- B. Contracts
- C. Expands
- D. Shows no change

**Answer: B**



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78. The vital capacity of lungs of an average human is

A. 3500 mL

B. 4800 mL

C. 500mL

D. 1200mL

**Answer: B**



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79. The type of respiration in mammals is called

A. Pulmonary respiration

B. Gill respiration

C. Cutaneous respiration

D. Tracheal respiration

**Answer: A**



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**80.** Normal breathing is called

A. Apnea

B. Dyspnea

C. Eupnea

D. Hyperpnea

**Answer: C**



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**81.** Hb most strongly combines with

A. CO

B.  $O_2$

C.  $CO_2$

D.  $O_3$

**Answer: A**



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**82.** Tissue respiration is a process by which

- A. Carbohydrate are synthesized
- B. Proteins are broken down
- C. Fat molecules are metabolized
- D. Energy is liberated

**Answer: D**



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**83.** The exchange of gases in the alveoli of the lungs takes place by

A. Active transport

B. Osmosis

C. Simple diffusion

D. Passive transport .

**Answer: C**



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**84.** How  $CO_2$  is transported mainly in the blood?

A. Respiratory pigment

B. Dissolution of gases

C.  $O_2$  taken by tissues

D. Bicarbonates

**Answer: D**



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**85.** In which state iron is present in hemoglobin?

A. Ionic

B. Unionic

C.  $Fe^{2+}$

D.  $Fe^{3+}$

**Answer: A**



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**86.** Respiratory control centre is present in

A. Medulla oblongata

B. Cerebellum

C. Cerebrum

D. Diencephalon

**Answer: A**



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### 87. Match the column

Column I

Column II

(a) Larynx

(p) Lid of larynx

(b) Trachea

(q) Air sacs

(c) Alveoli

(r) Voice box

(d) Epiglottis

(s) Wind pipe

(t) Common passage

A. (a)  $\rightarrow$  (r), (b)  $\rightarrow$  (s), (c)  $\rightarrow$  (q), (d)  $\rightarrow$  (p)

B. (a)  $\rightarrow$  (t), (b)  $\rightarrow$  (s), (c)  $\rightarrow$  (p), (d)  $\rightarrow$  (q)

C. (a)  $\rightarrow$  (r), (b)  $\rightarrow$  (s), (c)  $\rightarrow$  (q), (d)  $\rightarrow$  (t)

D. (a)  $\rightarrow$  (r), (b)  $\rightarrow$  (t), (c)  $\rightarrow$  (q), (d)  $\rightarrow$  (p)

**Answer: A**



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88. Respiration is controlled by:

- A. Cerebrum
- B. Hypothalamus
- C. Cerebellum
- D. Medulla oblongata

**Answer: D**



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89. Which of the following is shifted in chloride - shift ?

- A.  $O_2$  and  $CO_2$

B. Bicarbonate ions

C.  $CO_2$

D.  $O_2$

**Answer: B**



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**90.** Which one of the following is capable of carrying oxygen ?

A. Plasma

B. Blood

C. Serum

D. Lymph

**Answer: B**



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**91.** Bicarbonate ion is produced inside

A. Lymphocytes

B. Neutrophil

C. Basophil

D. RBCs

**Answer: D**



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92. Adam 's apple represents

- A. Cricoid cartilage
- B. Thyroid cartilage
- C. Both (1) and (2)
- D. None of the above

**Answer: B**



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93. Amount of oxygen present in one gram of haemoglobin is

A. 1.34mL

B. 13.4 mL

C. 134 mL

D. 20 mL

**Answer: A**



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94. Book lungs are the respiratory organs found in

A. Mollusca

B. Mammals

C. Arachnida

D. Earthworm

**Answer: C**



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**95.** Respoirated centre of brain is mainly stimulated by

A.  $CO_2$  concentration in venous blood

B.  $O_2$  concentration in artery blood

C.  $CO_2$  concentration in artery blood

D.  $O_2$  concentration in venous blood.

**Answer: C**



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**96.** The energy currency of the cell.

A. 10 AMP

B. ATP

C. Carbohydrates

D. NAD

**Answer: B**



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97. What can determine the percentage of oxygen carried by Hb?

- A. pH of blood
- B. Percentage of  $CO_2$
- C. Partial pressure of oxygen
- D. All of the above

**Answer: D**



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98. Hamburger phenomenon is also known as

- A. Sodium shift
- B. Chloride shift
- C. Lead shift
- D. None of these

**Answer: B**



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99. The correct order of structures through which the air passes in the body is

- A. Nasal cavity, larynx, trachea, bronchi air sacs
- B. Bronchi, nasal cavity, larynx, trachea air sacs
- C. Larynx, bronchi, nasal cavity, trachea air sacs
- D. Nasal cavity, trachea, larynx, bronchi air sacs.

**Answer: A**



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**100.** During inspiration ,

- A. The diaphragm gets raised and ribs get lowered
- B. Both diaphragm and ribs get lowered
- C. Ribs get raised and diaphragm get lowered

D. The diaphragm gets flattered and ribs get raised.

**Answer: D**



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**101.** Which one of the following can respire in the absence of oxygen ?

A. Amoeba

B. Tapeworm

C. Housefly

D. Hydra

**Answer: B**





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102. When  $CO_2$  concentration in blood increases breathing becomes

- A. Slow and deep
- B. Faster and deeper
- C. Shallower and slow
- D. There is no effect on breathing

**Answer: B**



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**103.** Ascent of high mountain may cause altitude sickness in people. Primary cause of this is

- A. Exces of  $CO_2$  in blood
- B. Decreased efficiency of hemoglobin
- C. Decreased partial pressure of oxygen
- D. Decreased proportional of oxygen in air.

**Answer: C**

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**104.** In lungs there is definite exchange of ions between RBC and plasma. Removal of  $CO_2$  from blood involves

- A. Efflux of  $Cl^-$  ions from RBC
- B. Influx of  $Cl^-$  ion into RBC
- C. Influx of  $HCO_3^-$  ions into RBC
- D. Efflux of  $HCO_3^-$  ions form RBC \

**Answer: A**



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**105.** Which enzyme is most abundantly found in RBC ?

- A. Carbonic anhydrase
- B. Hemoglobin
- C. Albumin

## D. Thrombinase

**Answer: A**



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**106.** Combination of haemoglobin with  $O_2$  in lungs can be promoted by

- A. Decreasing  $O_2$  concentration in blood
- B. Increasing  $O_2$  concentration in air
- C. Increasing  $CO_2$  concentration in air
- D. Decreasing  $CO_2$  concentration in air.

**Answer: B**



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**107.** SARS is caused by the variant of

- A. Pneumococcus pneumonia
- B. Common cold coronavirus
- C. Asthma
- D. Bronchitis

**Answer: B**



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**108.** Pleurisy is the disease of

A. Liver

B. Heart

C. Lungs

D. Kidneys .

**Answer: C**



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**109.** At higher altitudes, a man suffers much from

A. Cold

B. Oxygen deficiency

C. Higher atmospheric pressure

D. Ultraviolet radiations.

**Answer: B**



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**110.** Lung tuberculosis is caused by

A. Tuberculosis virus

B. Streptococci

C. Staphylococci

D. Tuberculosis bacillus.

**Answer: D**



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**111.** Asthma is caused due to

A. Infection of lungs

B. Tracheal infection

C. Bleeding in the pleural cavity

D. Cramps in the bronchial muscles obstructing the  
air passage.

**Answer: D**





**112.** The exchange of gases in the alveoli of the lungs takes place by

- A. Active transport
- B. Osmosis
- C. Simple diffusion
- D. Passive transport .

**Answer: C**



**Watch Video Solution**

**113.** Vocal cords are present in

A. Pharynx

B. Larynx

C. Glottis

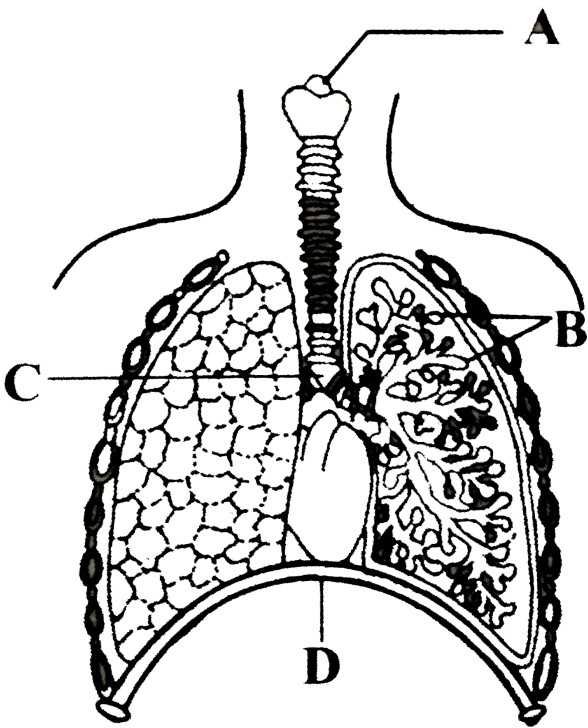
D. Bronchial tube

**Answer: B**



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**114.** The given figure shows the diagrammatic view of human respiratory system. Identify A, B, C and D.



A. A-Epiglottis, B-Trachea, C-Glottis, D-Diaphragm,E-  
Bronchiole

B. A-Glottis, B-Trachea, C-Bronchus,D-Diaphragm, E-  
Bronchiole

C. A-Adams apple, B-Trachea,C-Bronchus,D-Diaphragm,E-Bronchiole

D. A-Epiglottis,B-Trachea,C-Bronchus, D-Diaphragm, E-Bronchiole.

**Answer: A**



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**115.** Adam 's apple represents

- A. Arytenoid cartilage of larynx
- B. Cricoid cartilage of larynx
- C. Thyroid cartilage of larynx

D. All the above.

**Answer: C**



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**116.** Respoirated centre of brain is mainly stimulated by

- A. Carbon dioxide content in venous blood
- B. Carbon dioxide content in oxygentated blood
- C. Oxygen content in venous blood
- D. Oxygen content in arterial blood.

**Answer: B**



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117. Carbon dioxide entering erythrocytes reacts with water to form carbonic acid. The enzyme is

- A. Carbonic anhydrase
- B. Carboxypeptidase
- C. Hydrolase
- D. Oxidoreductase.

**Answer: A**



**118.** Arytenoid cartilage occurs in

A. Hyoid

B. Sternum

C. Larynx

D. Nose

**Answer: C**



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**119.** During expiration, the diaphragm becomes

A. Oblique

B. Normal

C. Flattened

D. Dome-shaped

**Answer: D**



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**120.** Exchange of bicarbonates and chloride ions between RBC and plasma is called : —

A. Chloride shift

B. Bohr's effect

C. Haldane's effect



D. Intra cellular respiration

**Answer: A**



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121. When  $CO_2$  concentration in blood increases breathing becomes

- A. There is no effect on breathing
- B. Slow and deep
- C. Faster
- D. Shallower and slow

**Answer: C**



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122. When  $CO_2$  concentration in blood increases breathing becomes

- A. Increase
- B. Decrease rapidly
- C. Stop
- D. Remain unchanged

**Answer: A**



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123. Hering-Breuer reflex is related to : —

- A. Effect of pH on respiratory center
- B. Effect of  $CO_2$  on respiratory center
- C. Effect of nerves on respiratory center
- D. Effect of temperature on respiratory center

**Answer: C**



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124. The toxic effect of carbon monoxide is due to its greater affinity for haemoglobin as compared to oxygen approximately by

A. 2 time

B. 20 times

C. 2000 times

D. 200-300 times

**Answer: D**



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**125.**  $CO_2$  is mainly transported as:

A. Plasma

B. Carbonic acid

C. Bicarbonate

D. Carboxyhemoglobin

**Answer: C**



**Watch Video Solution**

**126.** By which mechanism, oxygen is released out from lungs to cells

A. Diffusion

B. Facilitated diffusion

C. Transpiration

D. Osmosis

**Answer: A**



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127. Why is CO poisonous for man ?

A. CO effects the nerves of the lungs.

B. CO affects the diaphragm and intercostal muscles.

C. CO reacts with oxygen reducing percentage of  $O_2$   
in air.

D. Hemoglobin combines with CO instead  $O_2$  and the  
product cannot dissociate.

**Answer: D**



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**128.** Hamburger's effect is also known as

- A. Bicarbonate shift
- B. Chloride shift
- C. Potassium shift
- D. All of these

**Answer: B**



**Watch Video Solution**

**129.** Blood hemoglobin has high affinity for

- A. Carbon monoxide

B. Carbon dioxide

C. Oxygen

D. Ammonia

**Answer: A**



**Watch Video Solution**

**130.** Dissociation curve shifts to the right when

A.  $CO_2$  concentration decrease

B.  $CO_2$  concentration increases

C.  $O_2$  concentration decrease

D.  $Cl^-$  concentration increases



**Answer: B**



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**131.** The epithelium of respiratory bronchioles is : —

(a) Simple cuboidal

(b) Pseudostratified columnar

(c) Simple squamous

(d) Pseudostratified sensory

A. Pseudostratified and columnar

B. Sqamous and sensory

C. Pseudostratified and sensory

D. Cuboidal and columnar .

**Answer: B**



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**132.** If a man from sea coast goes to Everest peak then

- A. His breathing and heart beat will increase
- B. His breathing and heart will decrease
- C. His respiratory rate will decrease
- D. His heart beat will decrease

**Answer: A**



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**133.** Which of the following prevents the entry of food into the wind pipe?

A. Gullet

B. Glottis

C. Tonsil

D. Epiglottis

**Answer: D**



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**134.** Carbonic anhydrase occurs in

A. Leucocytes

B. Blood plasma

C. Erythrocytes

D. Lymphocytes

**Answer: C**



**Watch Video Solution**

**135.** What would happen if human blood becomes acidic (low pH)?

A. Oxygen - carrying capacity of hemoglobin increases.

B. Oxygen-carrying capacity of hemoglobin decreases.

C. RBCs count increases.

D. RBCs count decreases.

**Answer: B**



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**136.** Which of the following is correct regarding respiration ?

A. No organism can live without respiration.

B. It takes place at every time day and night.

C. It involves production of carbon dioxide and water.

D. All of these

**Answer: D**



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**137.** Respiratory coefficient is

A. The amount of  $CO_2$  produced to  $O_2$  utilized.

B. The amount of  $O_2$  obtained to the amount of  $O_2$  consumed.

C. Always more than one.

D. Always less than one.

**Answer: A**



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**138.** Dyspnea is the

- A. Normal breathing
- B. Difficult breathing
- C. Rapid breathing
- D. Stage without breathing

**Answer: B**



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139. The oxygen carrier or respiratory pigment in the blood of frog and other vertebrates is

- A. Hemocyanin
- B. Cytochrome
- C. Hemoglobin
- D. None of these

**Answer: C**



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140. Although much  $CO_2$  is carried in blood, yet blood does not become acidic, because



A. Neutralization of  $H_2CO_3$  by  $Na_2CO_3$

B. Absorption by leucocytes

C. Blood buffers

D. Non- accumulation

**Answer: C**



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**141.** A specialised centre known as respiratory rhythm centre regulates respiration. It is located in

A. Cerebral penduncle

B. Vagus nerve

C. Pons

D. Medulla oblongata

**Answer: D**



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**142.** Respiration mechanism is controlled by

A. Central nervous system

B. Sympathetic nervous system

C. Parasympathetic nervous system

D. Autonomic nervous system.

**Answer: A**



**Watch Video Solution**

**143.** Low oxygen tension in the blood causes

- A. Coughing
- B. Yawning
- C. Hiccapping
- D. Sneezing

**Answer: B**



**Watch Video Solution**

144. Oxygen dissociation curve is

- A. Sigmoid
- B. Hyperbolic
- C. Straight line
- D. Parabolic

**Answer: A**



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145. The affinity of CO with Hb is more than oxygen by

- A. 2 times

B. 20 times

C. 200 times

D. 2000 times

**Answer: C**



**Watch Video Solution**

**146.** The exchange of gases in the alveoli of the lungs takes place by

A. Simple diffusion

B. Active transport

C. Passive transport

D. Osmosis

**Answer: A**



**Watch Video Solution**

**147.** Covering of the lungs is called

A. Pleura

B. Pericardia

C. Peritoneum

D. Mediastinum

**Answer: A**



**Watch Video Solution**

**148.** Hamburger's effect is also known as

- A. Calcium shift
- B. Bohr effect
- C. Chloride shift
- D.  $Na^+ - K^+$  pump

**Answer: C**



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**149.** Even when there is no air in it trachea does not collapse due to the presence of

- A. Bony rings
- B. Turgid pressure
- C. Chitinous rings
- D. Cartilaginous rings

**Answer: D**



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**150.** The movement of true vocal cords in man is controlled by cartilages



A. Arytenoids

B. Cricoid

C. Thyroid

D. Both(1) and (2)

**Answer: A**



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**151.** Presence of large number of alveoli around alveolar ducts opening into bronchioles in mammalian lungs is

A. Inefficient system of ventilation with little of residual air

- B. Inefficient system of ventilation with high percentage of residual air
- C. Efficient system of ventilation with no residual air
- D. Efficient system of ventilation with little residual air

**Answer: D**



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**152.** Exposure to carbon monoxide ( from coal gas ) is extremely dangerous and can kill a patient because

- A. The compound carboxy-hemoglobin is formed with hemoglobin which can gradually clot the blood resulting in circulatory failure.
- B. Carboxy-hemoglobin reduces the ability of blood to transport oxygen by rupturing a vast majority of erythrocyte.
- C. Carboxy-hemoglobin greatly modifies the structure of hemoglobin, thus making it lose its affinity for oxygen.
- D. The compound formed, carboxy-hemoglobin does not allow RBCs to act for their respiratory function.

**Answer: D**



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**153. Which is correct ?**

- A. Respiratory centers are not affected by  $CO_2$ .
- B. In human, vital capacity is just double the expiratory volume.
- C. A human lung has 1000 alveoli.
- D. During inspiration, the lungs act as suction pump.

**Answer: D**



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154. In lungs, the air is separated from the venous blood through

A. Squamous epithelium + Endothelium of blood vessel

B. Squamous epithelium + Tunica externa, media, and interna of blood

C. Squamous epithelium+ Basement membrane + Endothelium of blood vessels

D. None of these

**Answer: C**



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**155.** Intercostal muscles are found attached with

A. Diaphragm

B. Ribs

C. Pleura

D. Lungs

**Answer: B**



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156. Match the disorders given in column I with symptoms under column II choose the answer which gives the correct combination of alphabets with number

| Column I     | Column II                          |
|--------------|------------------------------------|
| A Asthma     | 1. Inflammation of nasal tract     |
| B Bronchitis | 2. Spasm of tracheal muscle        |
| C Rhinitis   | 3. Fully blown out alveoli         |
| D Emphysema  | 4. Inflammation of bronchi         |
|              | 5. Cough with blood stained sputum |

A. A=4,B=2,C=5,D=1

B. A=5,B=3,C=2,D=1

C. A=3,B=1,C=5,D=4

D. A=2,B=4,C=1,D=3

**Answer: D**



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**157.** Which one of the following statements is incorrect?

- A. The presence of non-respiratory air sacs increase the efficiency of respiration in birds .
- B. In insects, circulating body fluids serve to distribute oxygen to tissues.
- C. The principle of countercurrent flow facilitates efficient respiration in gills of fishes .



D. The residual air in lungs slightly decreases the efficiency of respiration in mammals.

**Answer: B**



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**158.** Assertion : Carbonic anhydrase is present in the erythrocytes.

Reason : In erythrocytes the carbon dioxide combine with water and is transported.

A. Statement A is correct and is responsible for statement B

B. Statement A is not correct, but statement B is correct.

C. Both statement A and B are wrong .

D. Statement A is correct, but not involved in statement

**Answer: A**



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**159.** Carboxyhaemoglobin complex results due to this pollutant:

A.  $CO_2$

B.  $CO$

C.  $H_2CO_3$

D.  $SO_2$

**Answer: B**



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**160.** One haemoglobin carries how many molecules of  $O_2$  ?

A. 4

B. 2

C. 6

D. 8

**Answer: A**



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**161.** What is respiratory center? What is its use in the process of respiration.

A. Cerebellum

B. Cerebrum

C. Medulla oblongata

D. Hypothalamus

**Answer: C**



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**162.** After deep inspiration, maximum expiration of lungs is called

- A. Total lung capacity
- B. Functional residual capacity
- C. vital capacity
- D. Inspiratory capacity

**Answer: C**



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**163.** Pneumotaxic centre is present in:

- A. Cerebrum
- B. Cerebellum
- C. Medulla oblongata
- D. Pons varolii

**Answer: D**



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**164.** The specialty common in the alveoli of lungs and villi of intestine in mammals is that both

- A. Provides a large surface area
- B. Have ciliated epithelium
- C. Are suited for diffusion of gases
- D. Have rich supply of blood vessel and lymph ducts

**Answer: A**



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**165.** During inspiration, the diaphragm

- A. Relaxes to become dome -shaped
- B. contracts and flattens
- C. Expands

D. Shows no change

**Answer: B**



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**166.** The site of gaseous exchange in the lungs is:

A. Tracheoles

B. Alveoli

C. Bronchioles

D. Pulmonary chambers.

**Answer: B**



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**167.** Respiration without a distinct respiratory organ occurs in

- A. Fish
- B. Cockroach
- C. Tadpole
- D. Earthworm

**Answer: D**



**168.** In lungs there is definite exchange of ions between RBC and plasma. Removal of  $CO_2$  from blood involves

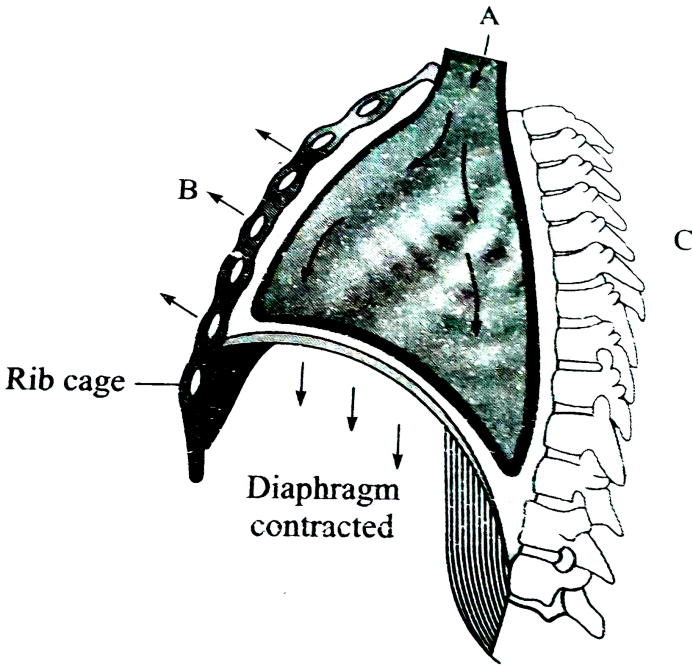
- A. Influx of  $Cl^-$  ions into RBC
- B. Influx of  $HCO_3^-$  into RBC
- C. Efflux of  $Cl^-$  ions from RBC
- D. Efflux of  $HCO_3^-$  ions from RBC

**Answer: D**



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169. In Fig. 17.14, identify what is depicted by A,B and C.



Choose the correct options :

**Column-I**

**Column-II**

**A** (i) Ribs and sternum raised

**B** (ii) Air entering lungs

**C** (iii) Volume of the lungs increased

A. A-i,B-ii,C-iii

B. A-ii,B-iii,C-i

C. A-i,B-iii,C-ii

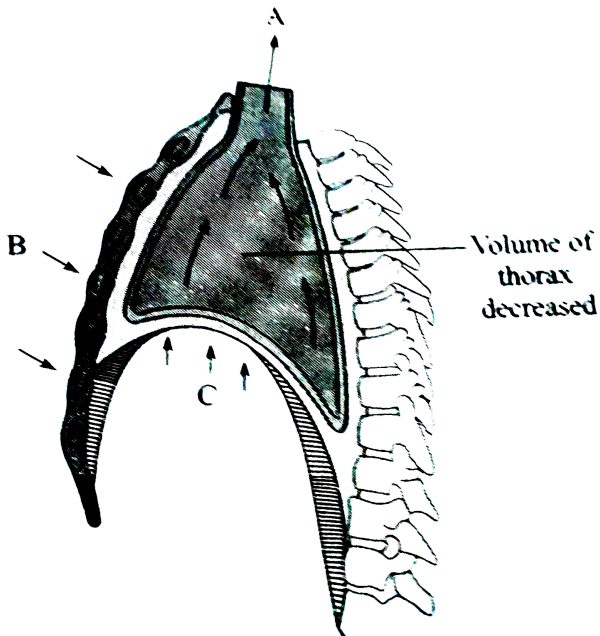
D. A-ii,B-i,C-iii

**Answer: D**



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170. what does A,B and C depict ?



A. A- Air goes inside to lungs, B-Ribs and sternum return to original position, C-Diaphragm contracted

B. A-Air expelled from lungs, B- Ribs and sternum return to original position, C-Diaphragm relaxed

and arched upwards.

C. A-Air expelled from lungs, B-Ribs and sternum goes

upward, C-Diaphragm relaxed and arched upwards

D. A- Air goes inside from lungs, B- Ribs sternum goes

upward, C-Diaphragm relaxed and arched upwards.

**Answer: B**



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**171.** The ventilation movements of the lungs in mammals are governed by

A. Diaphragm

B. Coastal muscles

C. Both (1) and (2)

D. None of these

Answer: C



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| Column I |                     | Column II |      |
|----------|---------------------|-----------|------|
| A        | TV                  | i.        | 5800 |
| B        | RV                  | ii.       | 4600 |
| C        | ERV                 | iii.      | 2300 |
| D        | IRV                 | iv.       | 3500 |
| E        | IC                  | v.        | 1200 |
| F        | FRC                 | vi.       | 1100 |
| G        | VC                  | vii.      | 3000 |
| H        | Total lung capacity | viii.     | 500  |

- A. 

|             |           |           |          |            |            |           |          |
|-------------|-----------|-----------|----------|------------|------------|-----------|----------|
| <i>A</i>    | <i>B</i>  | <i>C</i>  | <i>D</i> | <i>E</i>   | <i>F</i>   | <i>G</i>  | <i>H</i> |
| <i>viii</i> | <i>iv</i> | <i>vi</i> | <i>v</i> | <i>vii</i> | <i>iii</i> | <i>ii</i> | <i>i</i> |
- B. 

|             |            |           |           |          |            |           |          |
|-------------|------------|-----------|-----------|----------|------------|-----------|----------|
| <i>A</i>    | <i>B</i>   | <i>C</i>  | <i>D</i>  | <i>E</i> | <i>F</i>   | <i>G</i>  | <i>H</i> |
| <i>viii</i> | <i>vii</i> | <i>vi</i> | <i>iv</i> | <i>v</i> | <i>iii</i> | <i>ii</i> | <i>i</i> |
- C. 

|             |            |           |           |          |            |           |          |
|-------------|------------|-----------|-----------|----------|------------|-----------|----------|
| <i>A</i>    | <i>B</i>   | <i>C</i>  | <i>D</i>  | <i>E</i> | <i>F</i>   | <i>G</i>  | <i>H</i> |
| <i>viii</i> | <i>vii</i> | <i>vi</i> | <i>iv</i> | <i>v</i> | <i>iii</i> | <i>ii</i> | <i>i</i> |
- D. 

|             |            |           |          |           |            |           |          |
|-------------|------------|-----------|----------|-----------|------------|-----------|----------|
| <i>A</i>    | <i>B</i>   | <i>C</i>  | <i>D</i> | <i>E</i>  | <i>F</i>   | <i>G</i>  | <i>H</i> |
| <i>viii</i> | <i>vii</i> | <i>vi</i> | <i>v</i> | <i>iv</i> | <i>iii</i> | <i>ii</i> | <i>i</i> |

**Answer: D**



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**173.** Floating ribs of thoracic cage are

- A. 1<sup>st</sup> to 7<sup>th</sup> pairs
- B. 8<sup>th</sup> to 9<sup>th</sup> pairs
- C. 8<sup>th</sup> to 10<sup>th</sup> pairs



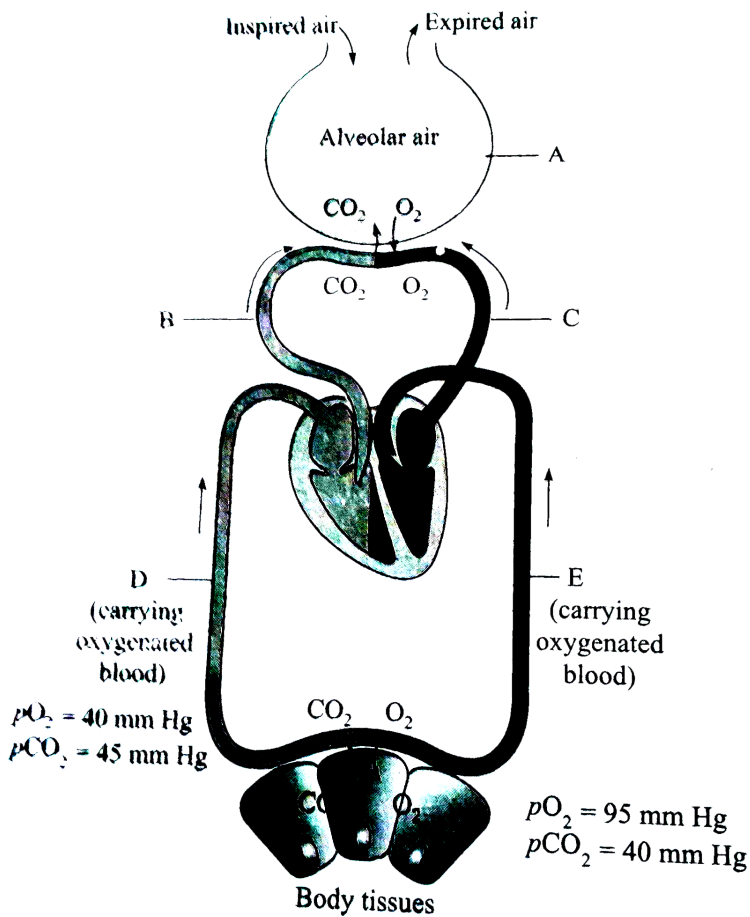
D.  $11^{th}$  to  $12^{th}$  pairs

**Answer: D**



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**174.** Identify A to E choose the correct option accordingly .



A. A-Alveolus, B-Pulmonary artery , C-Pulmonary vein,

D-Systemic vein, E-systemic arteries

B. A-Alveolus, B- Pulmonary vein, C- Pulmonary artery,

D-Systemic vein, E-systemic arteries

C. A-Alveolus, B-Pulmonary vein, C-Pulmonary artery,

D-Systemic arteries, E-Systemic vein

D. A-Alveolus, B-Pulmonary vein, C-Pulmonary artery,

D-Systemic arteries , E- Portal vein

**Answer: A**



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**175.** Match the disorders given in column I with symptoms under column II choose the answer which

gives the correct combination of alphabets with number

| Column I     | Column II  |
|--------------|--|
| A Asthma     | 1. Inflammation of nasal tract                                   |
| B Bronchitis | 2. Spasm of tracheal muscle                                      |
| C Rhinitis   | 3. Fully blown out alveoli                                       |
| D Emphysema  | 4. Inflammation of bronchi<br>5. Cough with blood stained sputum |

A. *A B C D*  
*iv ii v i*

B. *A B C D*  
*v iii ii i*

C. *A B C D*  
*iii i v iv*

D. *A B C D*  
*ii iv i iii*

**Answer: D**



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**176.** Identify the correct group of statements.

I. Oxygen is carried by haemoglobin.

II. Oxygen is carried by carbonic anhydrase.

III.  $CO_2$  is carried by haemoglobin

IV.  $SO_2$  is carried by haemoglobin.

V. Only oxygen is transported by the blood.

VI. Only  $CO_2$  is transported by the blood.

Choose the correct option :

A. I and VI

B. II and III

C. IV and V

D. I and III

**Answer: D**



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**177.** Which statement are true / false?

(i) blood transports  $CO_2$  comparatively easily because of its high solubility

(ii) approximately 8.9 % of  $CO_2$  is transported dissolved in plasma

(iii)  $CO_2$  diffuses in to blood passed in to RBCs and reacts with water to form  $H_2CO_3$

(iv) haemoglobin of erythrocytes is basic

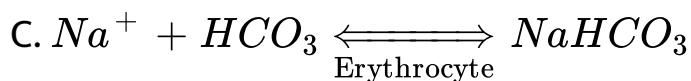
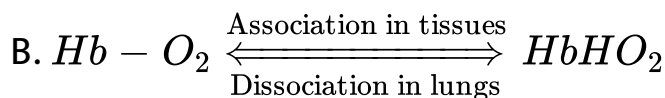
(v) chloride ions diffuse from plasma into erythrocytes to maintain ionic balance

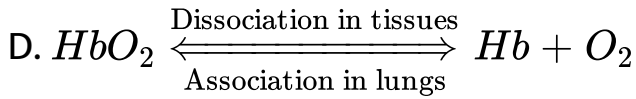
- A. True                      False  
       I,II and V        II and IV
- B. True                      False  
       II and IV        I,III and V
- C. True                      False  
       I,II and IV        III and IV
- D. True                      False  
       III and V        I,II and IV

**Answer: D**

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**178.** Which of the following equation is correct ?





**Answer: D**



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**179.** Human beings have a significant ability to maintain and moderate the respiratory rhythm to suit demands of the body. For it we have

Respiratory rhythm centre in medulla -R

Pneumotaxic centre in pons -RT

Chemosensitive area in medulla - $C_1$

Peripheral chemoreceptors in aortic arch and carotid artery - $C_2$

Find out the correct path for regulation of respiration.



$$\text{A. } C_1 \rightarrow PT \rightarrow C_2$$

$\uparrow$   
 $R$

$$\text{B. } PT \rightarrow C_2 \rightarrow C_1$$

$\uparrow$   
 $R$

$$\text{C. } PT \rightarrow R \rightarrow C_2$$

$\uparrow$   
 $C_1$

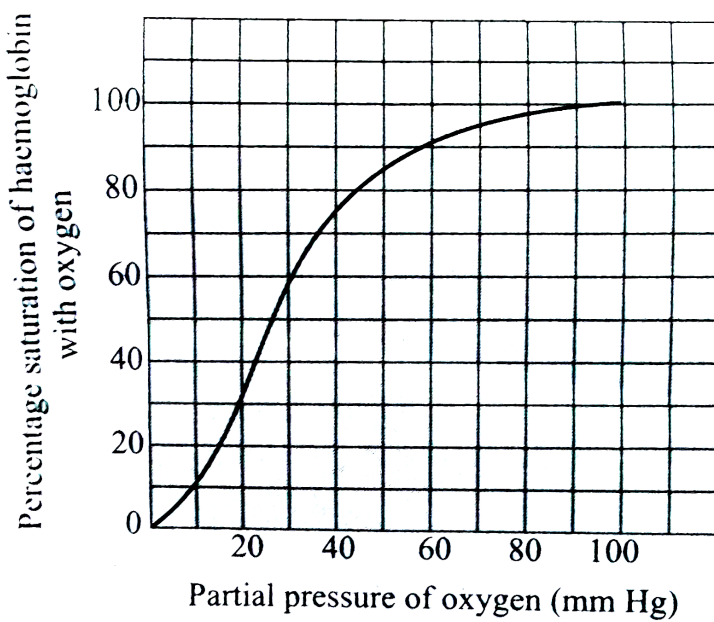
$$\text{D. } C_2R \rightarrow PT \rightarrow C_1$$

**Answer: C**



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**180.** Shifting of the curve to right takes place in the case of



- A. raise in  $pCO_2$
- B. fall in pH
- C. raise in temperature
- D. All of these

**Answer: D**



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**181.** Which of the following are correct differences between foetal haemoglobin (Hb-F) and adult haemoglobin (Hb-A) ?

(a) Hb-F has higher affinity for oxygen as compared to Hb-A

(b) The curve of Hb-F occurs towards the left of Hb-A

(c) Hb-F binds with BPG more strongly as compared to Hb-A

(d)  $P_{50}$  value of Hb-F is less than  $P_{50}$  value Hb-A

A. a,b,c,d

B. a,b,d

C. a,b,c

D. b,c,d

**Answer: C**



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**182.** Following is a tabular representation of partial pressure (in mmHg ) of oxygen and carbon dioxide at different parts involved in diffusion in comparison to those in atmosphere :

| Respiratory gas | Atmospheric air | Alveoli  | Blood deoxy-genated | Blood oxygen-ated | Tissues  |
|-----------------|-----------------|----------|---------------------|-------------------|----------|
| O <sub>2</sub>  | <b>A</b>        | 104      | <b>C</b>            | 95                | <b>E</b> |
| CO <sub>2</sub> | 0.3             | <b>B</b> | 45                  | <b>D</b>          | 45       |

Choose from the option which correctly fills up the

values A,B,C,D

and E

A. 

|  | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> |
|--|----------|----------|----------|----------|----------|
|  | 40       | 159      | 40       | 45       | 40       |

B. 

|  | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> |
|--|----------|----------|----------|----------|----------|
|  | 159      | 45       | 40       | 40       | 40       |

C. 

|  | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> |
|--|----------|----------|----------|----------|----------|
|  | 159      | 40       | 40       | 40       | 40       |

D. 

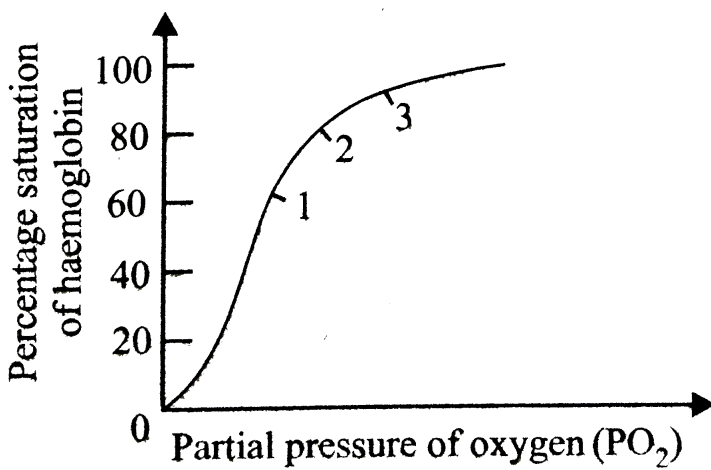
|  | <i>A</i> | <i>B</i> | <i>C</i> | <i>D</i> | <i>E</i> |
|--|----------|----------|----------|----------|----------|
|  | 100      | 45       | 40       | 40       | 40       |

**Answer: C**



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**183.** The given graph shows an oxygen dissociation curve for haemoglobin.



Where in the body will haemoglobin be saturated at the percentage shown at point 1, 2 and 3 in graph ?

- A. X-Pulmonary artery, Y- Pulmonary vein, Z-carotid artery
- B. X-Systemic artery, Y-Pulmonary artery, Z-Pulmonary vein
- C. X- Pulmonary vein, Y-Systemic vein, Z-Systemic vein during exercise

D. X-Left ventricle, Y-Right ventricle, Z-Systemic artery

**Answer: C**



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**184.** Find out the correct match from the following table:

| <b>Column-I</b>                      | <b>Column-II</b>  | <b>Column-III</b> |
|--------------------------------------|-------------------|-------------------|
| (i) Tidal Volume (TV)                | $(EC - ERV)$      | 500 mL            |
| (ii) Expiratory reserve volume (ERV) | $(VC - IRV - TV)$ | 3000 mL           |
| (iii) Vital capacity (VC)            | $IRV + ERV + RV$  | 4500 mL           |
| (iv) Residual volume (RV)            | $FRC - ERV$       | 1200 mL           |

A. (i) and (ii)

B. (i),(ii) and (iv)

C. (i),(ii) and (iii)

D. (i) and (iv)

**Answer: D**



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**185.** Which of the following statement is not correct ?

A. Formation of oxyhaemoglobin is a process of oxidation

B. Every 100 mL of oxygenated blood can deliver around 5 mL of  $O_2$  tissue under physiological condition



C. Dissociation curve is curve between percentage saturation of Hb with oxygen and partial pressure of oxygen.

D. High concentration of  $CO_2$  activates dissociation of oxyhaemoglobin is called Bohr's effect.

**Answer: A**



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**186.** In lungs there is definite exchange of ions between RBC and plasma. Removal of  $CO_2$  from blood involves

A. efflux of  $Cl^{\ominus}$  ions from RBC.

B. influx of  $Cl^{\ominus}$  ion into RBC.

C. influx of  $HCO_3^{\ominus}$  ions into Plasma

D. efflux of  $HCO_3^{\ominus}$  ions from RBC.

**Answer: A**



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**187.** 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

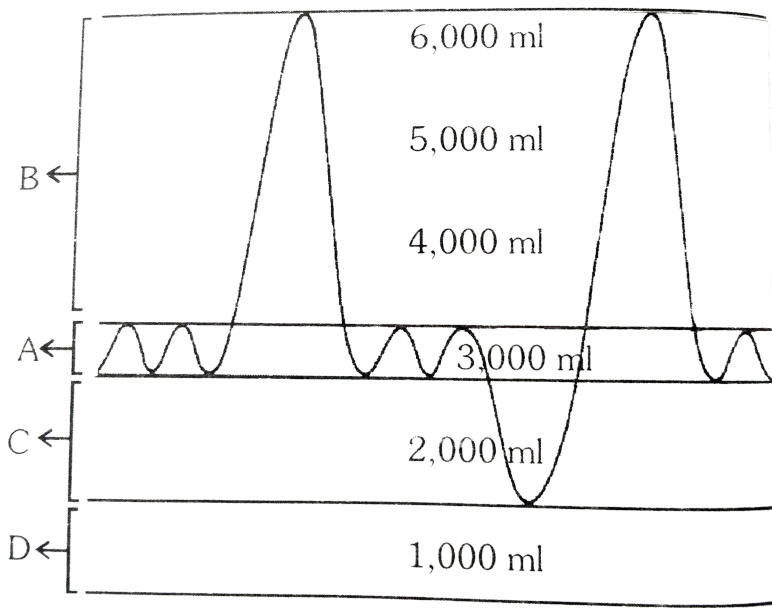
D. Cessation of breathing.

**Answer: D**



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**188.** Given figure is showing spirogram of pulmonary volumes and capacities



Which represent expiratory reserve volume : —

A. A

B. B

C. C

D. D

**Answer: C**



**189.** A: Pneumotaxic centre controls rate of respiration.

R: Primarily it controls switch off point of inspiration.

A. If both Assertion and Reason are true and the

Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the

Reason is not the correct explanation of the

Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: A**



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**190. A:** Asthmatic patients use bronchodilator drugs as well as inhalers for symptomatic relief.

**R:** Asthma is characterized by the spasm of smooth muscles in the wall of bronchioles due to allergen.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true, but the Reason is not the correct explanation of the

Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: A**



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**191. A:** Major part of carbondioxide is transported in the form of sodium bicarbonate.

**R:** 0.3 ml of carbon dioxide is transported per 100 ml of blood in dissolved state in plasma of blood.

- A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- B. If both Assertion and Reason are true ,but the Reason is not the correct explanation of the Assertion.
- C. If Assertion is true, but Reason is false
- D. If both Assertion and Reason are false.

**Answer: B**



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**192. A:** In cockroach, inspiration is a passive process.

**R:** Expansion of abdominal cavity allows the space of expansion of tracheal trunk, as a result air enters through spiracle.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the Reason is not the correct explanation of the Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: A**



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**193. A:** Diffusion of carbondioxide is 20 times faster than oxygen.

**R:** It is due to dirrerence solubility os diffusing gases.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the Reason is not the correct explanation of the Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: A**



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**194.** Assertion: Oxidation of nutrients releases bond energy

Reason : Oxidation of nutrients is done by using molecular oxygen.

(a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

(b) If both Assertion and Reason are true ,but the

Reason is not the correct explanation of the Assertion

(c) If Assertion is true, but Reason is false

(d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the

Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the

Reason is not the correct explanation of the

Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: B**



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**195.** Assertion : Aerobic respiration involves the exchange of respiratory gases twice.

Reason : Exchange occurs from lung to heart and then heart to lung.

A. If both Assertion and Reason are true and the

Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the

Reason is

not the correct explanation of the Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: C**



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**196.** Assertion: Respiratory gas exchange occurs through osmosis.

Reason: Respiratory gas goes from lower partial pressure region to the region of higher partial pressure.

A. If both Assertion and Reason are true and the

Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the

Reason is not the correct explanation of the

Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: D**



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**197.** Assertion: The first step of gas exchange occurs through body surface in some animals.

Reason: Body surface or membrane of amphibia is thick in nature.

A. If both Assertion and Reason are true and the

Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true ,but the Reason is not the correct explanation of the Assertion.

C. If Assertion is true, but Reason is false

D. If both Assertion and Reason are false.

**Answer: C**



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**198.** Assertion: Abdominal muscles is related with respiration in animals.

Reason: Relaxation of abdominal muscles draws in air.



- A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- B. If both Assertion and Reason are true ,but the Reason is not the correct explanation of the Assertion.
- C. If Assertion is true, but Reason is false
- D. If both Assertion and Reason are false.

**Answer: A**



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1. Which one of the following mammalian cells is not capable of metabolizing glucose to carbon-dioxide aerobically ?

A. Red blood cells

B. White blood cells

C. Unstriated muscle cells

D. Liver cells

**Answer: A**



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2. Listed below are four respiratory capacities (i-iv) and four jumbled respiratory volumes of a normal human adult.

|       | Respiratory volumes and capacities | Volume of air |
|-------|------------------------------------|---------------|
| (i)   | Residual volume                    | 1200 mL       |
| (ii)  | Vital capacity                     | 4500 mL       |
| (iii) | Inspiratory reserve volume         | 2500 mL       |
| (iv)  | Inspiratory capacity               | 3500 mL       |

A. (a) 4500 mL, (b) 3500 mL

B. (b) 2500 mL ,( c ) 4500 mL

C. (c ) 1200 mL ,(d) 2500 mL

D. (d) 3500 ml ,(a) 1200mL

**Answer: C**



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3. What is true about RBCs in humans ?

A. They do not carry  $CO_2$  at all

B. They carry about 20 – 25 % of  $CO_2$

C. They transport 99.5 % of  $O_2$

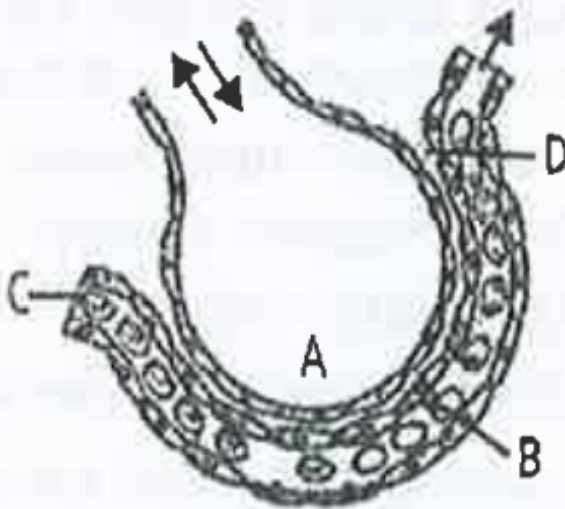
D. They transport about 80% oxygen only and the rest

**Answer: B**



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4. The figure given below shows a small part of human lung where exchange of gases takes place in which one of the options given below the one part A,B,C or D is correctly identified along with its function



A. B: red blood cell - transport of  $CO_2$  mainly

B. C: arterial capillary - passes oxygen to tissues

C. A: alveolar cavity - main site of exchange of respiratory gases

D. D: capillary wall - exchange of  $O_2$  and  $CO_2$  takes place here

**Answer: C**



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5. A large proportion of oxygen is left unused in the human blood even after its uptake by the body tissues. This  $O_2$

A. help in releasing more  $O_2$  to the epithelial tissues

B. acts as a reserve during muscular exercise

C. raises the  $pCO_2$  of blood to 75 mm of Hg

D. is enough to keep oxyhaemoglobin saturation at

96%

**Answer: B**



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**6.** People who have migrated from the planes to an area adjoining Rohtang Pass about six months back

- A. Suffer from altitudes sickness with symptoms like nausea, fatigue, etc.
- B. Have the usual RBC count but their haemoglobin has very high binding affinity to  $O_2$ .
- C. Have more RBCs and their haemoglobin has a lower binding affinity to  $O_2$ .
- D. Are not physically fit to play games like football

**Answer: C**



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7. Which one of the following is the incorrect statement for respiration in humans ?

A. Neural signals from pneumotoxic center in pons region of brain can increase the duration of inspiration

B. Workers in grinding and ston-breaking industries may suffer from lung fibrosis.

C. About 90% of carbon dioxide ( $CO_2$ ) is carried by hemoglobin as carbamino-hemoglobin.

D. Cigarette smoking may lead to inflammation of bronchi.

**Answer: B**



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8. The figure shows a diagrammatic view of human respiratory system with labels A, B, C and D. Select the option which gives correct identification and main function and/ or characteristic



A. B-Pleural membrane - Surrounds ribs on both sides to provide cushion against rubbing.

B. C-Alveoli -Thin-walled vascular bag-like structures for exchange of gases.

C. D-Lower end of lungs -Diaphragms pulls it down during inspiration.

D. A- Trachea-Long tube supported by complete cartilaginous rings for conducting inspired air.

**Answer: B**



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9. Approximately seventy percent of carbon dioxide absorbed by the blood will be transported to the lungs

A. as bicarbonate ions

B. in the form of dissolved gas molecules

C. by binding to R.B.C.

D. as carbaminohaemoglobin

**Answer: A**



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**10.** When you hold your breath, which of the following gas changes in blood would first lead to the urge to breathe?

A. rising  $CO_2$  and falling  $O_2$  concentration

B. falling  $O_2$  concentration

C. rising  $CO_2$  concentration

D. falling  $CO_2$  concentration

**Answer: C**



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11. In which disease due to narrowing of tracheal passages alveoli are deprived of oxygen ?

A. Asthma

B. Pleurisy

C. Emphysema

D. Pneumonia

**Answer: C**



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12. Name the chronic respiratory disorder caused mainly by cigarette smoking

- A. Emphysema
- B. Asthma
- C. Respiratory acidosis
- D. Respiratory alkalosis

**Answer: A**



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13. Asthma may be attributed to

- A. bacterial infection of the lungs
- B. allergic reaction of the mast cells in the lungs
- C. inflammation of the trachea
- D. accumulation of fluid in the lungs

**Answer: B**



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14. The partial pressure of oxygen in the alveoli of the lungs is

- A. Less than that in the blood
- B. Less than that of carbon dioxide
- C. Equal to that in the blood
- D. More than that in the blood.

**Answer: D**



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**15.** Lungs do not collapse between breaths and some air always remains in the lungs which can never be expelled because

- A. There is a positive intrapleural pressure



B. Pressure in the lungs is higher than the atmospheric pressure.

C. There is a negative pressure in the lungs.

D. There is a negative interpleural pressure pulling at the lung walls.

**Answer: D**



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