



# **BIOLOGY**

## **BOOKS - SANTRA BIOLOGY (BENGALI ENGLISH)**

### **BREATHING AND RESPIRATION**

**Exercise Objective Type Questions A Multiple  
Choice Questions Mcq**

1. In biological oxidation energy is produced in the form of

A. ADP

B. ATP

C. Glucose

D. Lactic acid

**Answer: B**



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2. Which of the following blood vessels carries O<sub>2</sub> poor blood from the heart to lungs?

A. pulmonary artery

B. carotid artery

C. aorta

D. pulmonary vein

**Answer: A**



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3. What are the tiny clusters of chambers for diffusion of gases in lungs?

A. alveolar sacs

B. lobes

C. bronchioles

D. pleura

**Answer: A**



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4. In which of the following structures vocal cords are located?

A. larynx

B. bronchi

C. pharynx

D. oesophagus

**Answer: A**



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5. Which of the primary waste gas diffused out of the blood onto alveoli?

A.  $NH_3$

B.  $N_2$

C.  $O_2$

D.  $CO_2$

**Answer: D**



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6. Site of gaseous exchange in lungs is

A. trachea

B. alveoli

C. pulmanory chamber

D. bronchioles

**Answer: B**



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7. Breathing

A. draws air into airways

B. expels air from airways

C. ventilates lungs

D. all of the above

**Answer: D**



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**8.** The amount of air that enters lungs during normal respiration is



A. vital capacity

B. total lung capacity

C. tidal volume

D. inspiration capacity

**Answer: C**



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**9. Most  $CO_2$  in blood is transported in the form of**

A. carbonic acid

B. hydrogen carbonate

C.  $CO$

D.  $CO_2$

**Answer: B**



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**10.** During quiet breathing inhalation is \_\_\_\_\_ whereas exhalation is \_\_\_\_\_

A. passive, passive

B. active, passive

C. passive, active

D. active, active

**Answer: B**



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**11.** The respiration medium flows unidirectionally over the respiratory surface in the gas-exchange systems of

A. frogs

B. insects

C. mammals

D. birds

**Answer: D**



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**12.**  $O_2$  in the air diffuses across \_\_\_\_\_ as it follows its partial pressure gradient into the human body.

A. alveolar sacs

B. pleural sacs

C. a moist respiratory surface

D. both (a) and (c)

**Answer: D**



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**13.** A partial pressure gradient of  $O_2$  exists between

- A. the atmosphere and the lungs
- B. lungs and metabolically active tissues
- C. air at sea level and high altitudes
- D. all of the above

**Answer: D**



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**14. Haemoglobin is the  $O_2$  carrying pigment of**

A. osteocytes

B. leucocytes

C. thrombocytes

D. erythrocytes

**Answer: D**



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**15.** Simple squamous non-ciliated epithelium is found in

A. bronchi

B. trachea

C. alveoli

D. bronchioles

**Answer: C**



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**16.** Haemoglobin is specifically described as a

A. enzyme

B. chromoprotein



C. nucleolipid

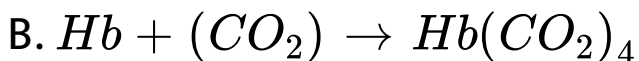
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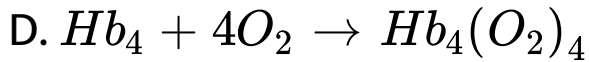
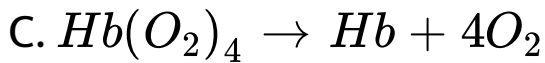
**Answer: B**



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**17.** Which of the following reactions prevails in RBC travelling through pulmonary capillaries?





**Answer: D**



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**18.** In the nostril the air is

A. filtered

B. warmed

C. moistened

D. all of the above

**Answer: D**



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**19.** Which of the following is not a respiratory exchange surface?

A. skin of amphibians

B. alveoli of mammals

C. gills of larval amphibians

D. air sacs of birds

**Answer: D**



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**20.** When  $CO_2$  binds to Haemoglobin, which of the following compounds is formed?

A. carbaminohaemoglobin

B. oxyhaemoglobin

C. hydrogencarbonate

D. carbonic acid

**Answer: A**



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**21. Haemoglobin has maximum affinity for**

A.  $CO$

B.  $CO_2$

C.  $O_2$

D.  $N_2$

**Answer: A**



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**22.** Which of the following causes a rightward shift in the O<sub>2</sub> dissociation curve?

A. an increase in hydrogen ion concentration

B. a decrease in pH

C. increased  $CO_2$  concentration

D. all of the above

**Answer: D**



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**23.** Compared to a human, a diving mammal of equal size has

A. larger lungs

B. a larger spleen

C. less  $O_2$  stored in blood

D. less blood, an adaptation that helps to conserve  $O_2$

**Answer: B**



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**24.** The maximum volume of air forcefully exhaled after taking the deepest possible breath is called

A. residual volume



B. total respiratory volume

C. vital capacity

D. tidal volume

**Answer: C**



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**25.** Compared to the interstitial fluid that bathes active muscle cells, blood reaching that tissue in arteries has a

A. higher  $P_{CO_2}$

B. lower pH

C. higher  $P_{O_2}$

D. greter hydrogencarbonate  
concentration

**Answer: C**



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26. After  $O_2$  diffusion into pulmonary capillaries, it diffuses into \_\_\_\_\_ and binds with \_\_\_\_\_

A. RBC, haemoglobin

B. RBC,  $CO_2$

C. interstitial fluid,  $CO_2$

D. interstitial fluid, RBC

**Answer: A**



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27. A decrease in the pH of human blood would

A. increase heart rate

B. decrease breathing rate

C. decrease cardiac output

D. decrease the amount of  $O_2$  unloaded  
from haemoglobin

**Answer: D**



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28. Which of the following is not a means by which  $O_2$  and/or  $CO_2$  is/are transported in the bloodstream of vertebrates?

- A. in solution in the plasma
- B. erythropoietin
- C. as hydrogencarbonate ions
- D. as oxyhaemoglobin

**Answer: B**



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29. In human lungs, gas exchange occurs at the

- A. alveolar sacs
- B. pleural sacs
- C. two bronchi
- D. both (a) and (b)

**Answer: A**



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30. The lung is enclosed in a double layered membrane called

A. pleura

B. perichondrium

C. pericardium

D. periosteum

**Answer: A**



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31. the respiratory centre in the brain which regulation the process of respiration in extremely sensitive to blood concentrations of

A.  $O_2$

B. oxyhaemoglobin

C.  $CO_2$

D. hydrogencarbonates

**Answer: C**



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32. The \_\_\_\_\_ is an airway that connects the nose and mouth with the

A. trachea, pharynx

B. pharynx, larynx

C. oral cavity, larynx

D. pharynx, trachea

**Answer: B**



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**33.** With the increase in temperature, the respiratory rate will

- A. increase
- B. remain unaffected
- C. decrease rapidly
- D. decrease slowly

**Answer: A**



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34. Which one of the following can respire in the total absence of air?

A. leucosolenia

B. taenia solium

C. cockroach

D. amoeba

**Answer: B**



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35. Which of the following tissues is most affected due to the deficiency of  $O_2$ ?

A. visceral muscles

B. long bones

C. cardiac muscles

D. hyaline cartilage

**Answer: C**



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**36.** Which of the following respiratory system is not closely associated with a blood supply?

A. fish gills

B. outer skin of earthworm

C. vertebrate lungs

D. tracheal systems of insects

**Answer: D**



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37. The respiratory mechanism is controlled by the

- A. sympathetic nervous system
- B. peripheral nervous system
- C. central nervous system
- D. parasympathetic nervous system

**Answer: C**



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**38.** In which of the following groups of animals the lungs are relatively non-elastic and are connected with elastic air - sacs?

A. reptiles

B. birds

C. amphibians

D. mammals

**Answer: B**



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**39.** In negative pressure breathing, inhalation results from

A. contracting the diaphragm

B. contracting the abdominal muscles

C. forcing air from the throat down into the lungs

D. relaxing the muscles of the rib cage

**Answer: A**



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**40.** Breathing rate in mammals is controlled by a part of the brain called

A. medulla oblongata

B. cerebrum

C. hypothalamus

D. cerebellum

**Answer: A**



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41. Alveoli increase the surface area of the human lung which is approximately the size of a

A. dining table

B. small bowl

C. tennis court

D. dinner plate

**Answer: C**



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**42.** The process of moving air or water across the gas - exchange surface of animal is known as

- A. active respiration
- B. countercurrent exchange
- C. ventilation
- D. facilitated diffusion

**Answer: C**



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**43.** The largest quantity of air that can be exhaled after a maximal inspiratory effort is

- A. tidal volume
- B. total lung capacity
- C. vital capacity
- D. residual volume

**Answer: C**



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44. Even when there is no air in it, human trachea does not collapse due to the presence of

- A. chitinous rings
- B. turgid pressure
- C. bony rings
- D. cartilaginous rings

**Answer: D**



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45. If  $CO_2$  concentration in the blood increases the breathing will

- A. decrease
- B. remain unaffected
- C. increase
- D. stop

**Answer: C**



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**46.** The Adam's apple is formed predominantly by which of the following structure?

A. larynx

B. bronchi

C. pharynx

D. oesophagus

**Answer: A**



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47. The structure which does not contribute to breathing movements in mammals is

A. larynx

B. ribs

C. abdominal muscles

D. diaphragm

**Answer: A**



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**48.** Which of the following constitutes the wind pipe or the upper four inches of the airway?

A. pharynx

B. bronchi

C. trachea

D. larynx

**Answer: C**



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**49.** Which of the following organs lines the mucous membrane and helps filtering and elimination of particles?

A. alveoli

B. cilia

C. bronchi

D. villi

**Answer: B**



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50. What is the synovial membrane which protects lungs from friction against abdominal wall?

- A. alveolar septum
- B. tracheal bifurcation
- C. mesentery
- D. pleura

**Answer: D**



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51. Which of the following gases forms the most stable compound with haemoglobin as erythrocytes?

A.  $CO_2$

B.  $CO$

C.  $N_2$

D.  $O_2$

**Answer: B**



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52. In which of the following forms  $CO_2$  is mostly carried in blood?

- A. carbonic acid
- B. carbaminohaemoglobin
- C. carbonate ions
- D. hydrogen carbonate ions

**Answer: D**



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53. What are the two large branches of the airway which lead off the trachea at the tracheal bifurcation?

A. bronchi

B. alveoli

C. bronchiole

D. larynx

**Answer: A**



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54. During strenuous muscular activity, hydrogen atoms removed from sugar molecules are accepted temporarily by \_\_\_\_\_ to form \_\_\_\_\_

A. pyruvate, lactic acid

B.  $O_2$ ,  $CO_2$

C.  $O_2$ , water

D. myoglobin , carbaminohaemoglobin

**Answer: A**



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55. The common part of respiratory and digestive system is

A. nasopharynx

B. oropharynx

C. laryngopharynx

D. oesophagus

**Answer: B**



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56. The value of ventilation \_\_\_\_\_ perfusion ratio is

A. 0.6

B. 0.2

C. 0.8

D. 0.4

**Answer: C**



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57. The alveoli of lungs is formed of

A. Squamous epithelium

B. Columnar epithelium

C. Cubical epithelium

D. Ciliated epithelium

**Answer: A**



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**58.** The total number of alveoli in both the lungs is

A. 600 million

B. 650 million

C. 750 million

D. 800 million

**Answer: C**



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59. The length of right primary bronchi is

A. 3.5 cm

B. 2 cm

C. 2.5 cm

D. 3.0 cm

**Answer: C**



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60. The diameter of each bronchiole is

A. 0.5 mm

B. 1 mm

C. 1.5 mm

D. 2 mm

**Answer: B**



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**61.** One of the following that takes part in forced inspiration is

A. diaphragm

B. thoracic ribs

C. external intercostal muscle

D. abdominal muscle

**Answer: D**



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**62.** The respiratory capacity of a man is determined by measuring the volume of

A. tidal air

B. residual air

C. vital capacity

D. total lung capacity

**Answer: C**



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**63.** The amount of  $CO_2$  in inspired air is

A. 5.5 %

B. 2.5 %

C. 0.04 %

D. 0.4 %

**Answer: C**



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**64.** The air in the physiological dead space does not take part in gaseous exchange because this space does not contain



A. alveoli

B. blood capillary

C. alveoli and capillary

D. more  $O_2$  and  $CO_2$

**Answer: B**



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**65.** Acclimatisation occurs at a height of

A. 8000 ft

B. 10000 ft

C. 14000 ft

D. 18000 ft

**Answer: C**



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**66.** Smoking is not related to

A. bronchitis

B. asthma

C. pleurisy

D. emphysema

**Answer: C**



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**67.** In which of the following diseases vital capacity is reduced?

A. typhoid

B. encephalitis

C. tuberculosis

D. intestinal pain

**Answer: C**



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**68.** The amount of  $O_2$  in alveolar air is

A. 16.4 %

B. 20.94 %

C. 5.6 %

D. 14 %

**Answer: D**



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**69.** One that is the correct equations for the calculation of Total Lung Capacity (TLC) is

A.  $TLC = \text{Vital Capacity (VC)} + \text{Residual Volume (RV)}$

B.  $TLC = \text{Inspiratory Reserve Volume (IRV)} +$   
 $RV$

C.  $TLC = VC + IRV$

D.  $TLC = RV + \text{Expiratory Reserve Volume}$   
 $(ERV)$

**Answer: A**



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70. Strong inspiratory efforts reduce intrapleural pressure to values as low as

A.  $-20$  mm Hg

B.  $-30$  mm Hg

C.  $-10$  mm Hg

D.  $-15$  mm Hg

**Answer: B**



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71. A person is suffering from frequent episodes of nasal discharge, nasal congestion, reddening of eyes and watery eyes. These are the symptoms of

- A. rhinitis
- B. bronchial carcinoma
- C. cyanosis
- D. bronchitis

**Answer: A**



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72. Chloride shift is called

- A. Co - toxicity
- B. Haldane effect
- C. Bohr effect
- D. Hamburger phenomenon

**Answer: D**



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73. In  $Na^+ - K^+$  Pump of active transport there is

- A. influx of  $Na^+$  and efflux of  $K^+$
- B. efflux of  $Na^+$  and influx of  $K^+$
- C. influx and efflux of  $Na^+$  only
- D. only efflux of  $Na^+$

**Answer: B**



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74. Acetyl CoA is produced from pyruvate by

A. oxidative phosphorespiration

B. oxidative decarboxylation

C. oxidative phosphorylation

D. oxidative hydrogenation

**Answer: B**



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75. The exchange of material between blood and interstitial fluid is by

A. capillaries

B. arterioles

C. veins

D. arteries

**Answer: A**



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76. Last electron acceptor in ETS is

A. water

B. cytochrome  $a_3$

C.  $O_2$

D. cytochrome C

**Answer: C**



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77. Direct ATP yield of aerobic respiration during Krebs cycle per glucose molecule is

- A. 36 ATP molecules
- B. 138 ATP molecules
- C. 2 ATP molecules
- D. 8 ATP molecules

**Answer: C**



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

A. facilitated diffusion

B. osmosis

C. simple diffusion

D. active transport

**Answer: C**



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79. Crocodile and penguin are similar to whale and dogfish in which one of the following features?

- A. lay eggs and guard them till they hatch
- B. have 4 chamber heart
- C. possess a solid single stranded central nervous system
- D. possess bony skeleton

**Answer: B**







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80. The energy - releasing metabolic process in which substrate is oxidised without an external electron acceptor is called

- A. fermentation
- B. aerobic respiration
- C. photorespiration
- D. glycolysis

**Answer: A**



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81. Bulk of carbon dioxide ( $CO_2$ ) released from body tissues into the blood is present as

- A. free  $CO_2$  in blood plasma
- B. 70 % carbamino - haemoglobin in RBCs
- C. carbamino - haemoglobin in RBCs
- D. bicarbonate in blood plasma and RBCs

**Answer: D**



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**82.** Two friends are eating together on a dining table. One of them suddenly starts coughing while swallowing some food. This coughing would have been due to improper movement of

A. neck

B. epiglottis

C. tongue

D. diaphragm

**Answer: B**



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**83.** Which of the following minerals activate the enzymes involved in respiration?

- A. copper and boron
- B. potassium and calcium
- C. magnesium and manganese
- D. sulphur and iron

**Answer: C**



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**84.** Common cold differs from pneumonia in,  
that :

A. pneumonia is caused by a virus while the  
common cold is caused by the bacterium  
*Haemophilus influenzae*

B. pneumonia pathogen infects alveoli

whereas the common cold affects nose  
and respiratory passage but not the  
lungs

C. pneumonia is a communicable disease

whereas the common cold is a  
nutritional deficiency disease

D. pneumonia can be prevented by a live

attenuated bacterial vaccine whereas

the common cold has no effective  
vaccine

**Answer: B**



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**85.** Which one of the following is the correct statement for respiration in humans?

A. workers in grinding and stone - breaking industries may suffer, from lung fibrosis

B. about 90 % of carbon dioxide ( $CO_2$ ) is carried by haemoglobin as carbaminohaemoglobin

C. cigarette smoking may lead to inflammation of bronchi

D. neural signals from pneumotoxic centre is pons region of brain can increase the duration of inspiration.

**Answer: A**



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**86.** When the oxygen supply to the tissue is inadequate, the condition is

A. dyspnea

B. hypoxia

C. asphyxia

D. apnea

**Answer: B**



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**87.** The serous membrane which covers the lungs is called

- A. pericardium
- B. peritoneus
- C. perichondrium
- D. pleura

**Answer: D**



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**88.** The structure which prevents the entry of food particles into the respiratory passage is

A. epiglottis

B. glottis

C. larynx

D. pharynx

**Answer: A**



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

A. falling  $O_2$  concentration

B. rising  $CO_2$  concentration

C. falling  $CO_2$  concentration

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

**Answer: B**



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90. The partial pressure of oxygen in the alveoli to the lungs is

- A. Less than that of  $CO_2$
- B. Equal to that in the blood
- C. More than that in the blood
- D. Less than that in the blood.

**Answer: C**



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

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

B. There is a negative pressure in lungs

C. There is a negative intrapleural pressure pulling at the lung walls

D. There is a positive intrapleural pressure

**Answer: C**



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**92.** Name of the common respiratory disorder caused mainly by cigarette smoking

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

**Answer: D**



**93.** Asthma may be attributed to

- A. Allergic reaction of the mast cells in the lungs
- B. Inflammation of the trachea
- C. Accumulation of fluid in the lungs
- D. Bacterial infection of lungs

**Answer: A**





94. Reduction in pH of blood will

A. Reduce the blood supply to the brain

B. Decrease the affinity of haemoglobin  
with oxygen

C. Release bicarbonate ions by the liver

D. Reduce the rate of heart beat

**Answer: B**



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95. Which of the following is the disorder of respiratory system?

- A. Emphysema
- B. Asthma
- C. Both (a) + (b)
- D. Angina pectoris

**Answer: C**



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**96.** Lungs are made up of air filled sacs the alveoli. They do not collapse even after forceful expiration because of

A. Inspiratory Reserve Volume

B. Tidal volume

C. Expiratory Reserve volume

D. Residual volume

**Answer: D**



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## B Choose More Than One Options

1. Which of the following statements are true ?
- A. The partial pressure of oxygen in deoxygenated blood is 40 mm Hg.
  - B. The partial pressure of oxygen in oxygenated blood is 95 mm Hg.
  - C. The partial pressure of  $CO_2$  in the alveolar air is 40 mm Hg.

D. Only 95 % of Haemoglobin is available  
for  $O_2$  carriage

**Answer: A::B::D**



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2. What is pneumonia?



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3. Which of the following statements are true?

A. Inspiratory capacity ( $IC$ ) =  $TV + IRV$

B. Expiratory reserve volume

$$(ERV) = EC - TV$$

C. Vital capacity ( $VC$ ) =  $IC + ERV$

D. Residual volume ( $RV$ ) =  $TLC - VC$

**Answer: A::B::D**



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**4. Which of the following are not correct?**

- A. Respiratory centres are not affected by  $CO_2$  concentration
- B. During inspiration lungs work as Suction Jump
- C. Haemoglobin is dark red whereas oxyhaemoglobin is bright red in colour
- D. The vital capacity of healthy person is 1000 ml.

**Answer: A::B::D**



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5. What are the symptoms of altitude sickness?



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6. Which of the following are correctly match?

Gases	Alveolar air (%)	Expiratory air (%)
a. O <sub>2</sub>	14.2	18.4
b. CO <sub>2</sub>	5.5	4.0
c. NO <sub>2</sub>	80.3	79.6
d. water vapour	6.2	5.0



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## 7. Mark the correct statements

A. Hearing - Breuer's reflex prevents the over expansion of lungs

B. Oxygen dissociation curve for foetal heamoglobin is on the left side with respect to maternal heamoglobin

C. When pneumotoxic centre transmits strong signal then inspiration time become shorter

D. The rate of breathing is 16-18 times per minute per adult

**Answer: A::B::D**



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**8. Which of the following statements are true for human ?**

A. Forceful expiration is an active process

B. Mammals have negative pressure breathing

C. Respiration excretes  $CO_2$ ,  $H_2O$  etc.

D. one can easily breath in and out by moving the diaphragm along without moving the ribs at all

**Answer: A::B::C**



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9. Which at the following pairs are correct?

A. Tidal Volume  $\rightarrow$  500 ml

B. Vital capacity  $\rightarrow$  4500 – 4800 ml

C. Total Lung capacity  $\rightarrow$  5000 ml

D. Expiratory capacity  $\rightarrow$  1500 ml

**Answer: A::B::C**



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10. Which of the following statements are correct?

A. insects circulating body fluids serve to distribute oxygen to tissues

B. The principle of counter current flow facilitates efficient respiration in gill of fishes

C. The presence of non-respiratory air sacs, increases the efficiency of respiration in

birds

D. Myocardial chemoreceptors produce

Bazold, Jarisch reflex.

**Answer: A::C::D**



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**11.** Which of the following statement are true about left lung?

A. Left lung has two lobes and one fissure

B. cardiac notch is present

C. it is wider than right lung

D. weighs about 600 gm

**Answer: A::B::D**



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**12. Which of the following statements are true**

**?**

A. Oxygen debt - After a muscular exertion, the amount of  $O_2$  needed to restore the body to a steady state

B. Respiratory Quotient (RQ) - The ratio of volume of  $CO_2$  released and  $O_2$  consumed during a given period of respiration

C. Vital capacity - During normal breathing the air which is inspired and expired



D. Kiss of life - The process of artificial respiration in which the rescuer blows air into the victim's lung's by mouth to mouth contact

**Answer: A::B::D**



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**13. Which of the following statements are true**

**?**

- A. The blood transport  $CO_2$  comparatively easily because of its higher solubility
- B. Approximately 8.9% of  $CO_2$  is transported being dissolved in the plasma of blood
- C. The chloride ions diffuse from Plasma into the RBC to maintain ionic balance
- D. The oxyhaemoglobin of the RBC is basic in nature

**Answer: A::C**



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## C Fill In The Blanks

1. The internal intercostal muscles contract during \_\_\_\_\_.



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2. The maximum volume of inspirable air is called \_\_\_\_\_.



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3. The metal associated with haemoglobin protein is \_\_\_\_\_.



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4. Conditioning of inspiratory air occurs in \_\_\_\_\_.



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5. Lungs are covered with the covering of \_\_\_\_\_.



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6. In lungs, the inspired air ultimately reaches to \_\_\_\_\_.



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7. Vital capacity of normal adult person is about to \_\_\_\_\_ litres.



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8. The pulmonary respiration takes place through \_\_\_\_\_.



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9. Glottis is closed during swallowing of food bolus by \_\_\_\_\_.



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**10.** The larynx opens into the pharynx through a slit-like opening called the \_\_\_\_\_.



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**11.** The respiratory tract is lined internally with a \_\_\_\_\_ epithelium.



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**12.** Diaphragm contracts to help in \_\_\_\_\_  
while the contraction of abdominal muscles  
helps in \_\_\_\_\_



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**13.** In human, trachea is strengthened by  
incomplete \_\_\_\_\_ rings.



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**14.** Sound is produced by vibrations of \_\_\_\_\_  
located in the \_\_\_\_\_.



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**15.** In the lungs the simple squamous non-ciliated epithelium is found in \_\_\_\_\_.



**Watch Video Solution**

**16.** The impulse for voluntary muscles during forced breathing starts in \_\_\_\_\_.



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**17.** Lungs lie in the thoracic cavity separated by \_\_\_\_\_ from the abdominal cavity.



**Watch Video Solution**

**18.** Inflammation in the outer covering of lungs is known as \_\_\_\_\_.



**Watch Video Solution**

**19.** Alveolar  $P_{O_2}$  is than the venous  $P_{O_2}$  .



**Watch Video Solution**

**20.** Arterial  $P_{O_2}$  is than the alveolar  $P_{O_2}$ .



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21. The most characteristic feature of haemoglobin is its ability to combine reversibly with \_\_\_\_\_.



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22. The exchange of  $CO_2$  and  $O_2$  between atmospheric air and blood of lung alveoli is called \_\_\_\_\_ respiration.



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23. After deep inspiration, capacity of maximum expiration of lungs is known as \_\_\_\_\_.



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24. Each haemoglobin molecule can carry \_\_\_\_\_ molecules of oxygen.



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25. \_\_\_\_\_, is a lipid surface tension lowering agent in the respiratory system.



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## D True Or False Statement Questions

1. Vital capacity defines the maximum capacity to ventilate lungs.



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**2.** The energy carrying compound in living cells is ATP.



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**3.** Forceful contraction of diaphragm causes forceful expiration.



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4. Major amount of carbon dioxide ( $CO_2$ ) from the tissues is transported to lungs in the form of hydrogencarbonates.



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5. The regulatory centre of respiration is situated in the cerebral cortex.



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**6.** A normal human respire 70-80 times per minute.



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**7.** Smaller the animal, the higher will be its respiratory rate.



**Watch Video Solution**

**8.** A person can expel all the air from lungs through forceful expiration.



**Watch Video Solution**

**9.** The condition where the body suffers from acute oxygen shortage is called hypoxia.



**Watch Video Solution**

**10.** The affinity of haemoglobin for carbon monoxide is more than that of oxygen.



**Watch Video Solution**

**11.** Lungs are totally emptied and refilled with fresh air during breathing.



**Watch Video Solution**

**12.** Respiratory organs of insects are known as tracheoles.



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**13.** Earthworm shows cutaneous type of respiration.



**Watch Video Solution**

**14.** Yeast does not provide any help in the biofermentation process.



**Watch Video Solution**

**15.** Define Tidal Volume



**Watch Video Solution**

**16.** 8 molecules of oxygen can associated with one molecule of haemoglobin.



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**17.** Define tidal volume



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**18.** RBC of venous blood contains more chloride .



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**19.** Smoking can lead to respiratory disorder like emphysema.



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**20.** Coal workers always suffer from black lung disease.



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**Very Short Answer Type Questions**

1. Which structures are part of conducting portion of the respiratory system?



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2. How many lobes & secondary bronchi are present in each lung?



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3. Name the enzyme which acts on carbonic acid in living cells.



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4. Name the particular kind of tissue which lines the inner surfaces of bronchioles.



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5. Name the structure which contains vocal cords.



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6. Why are the right and left lungs slightly different in shape?



**Watch Video Solution**

7. What is expiratory capacity?



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8. Which respiratory muscles are used in inspiration?



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9. What is the normal arterial blood  $P_{CO_2}$  ?



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**10.** How many molecules of  $O_2$  can transport one haemoglobin molecule?



**Watch Video Solution**

**11.** How does the epiglottis prevent foods and liquids from entering the larynx?



**Watch Video Solution**

**12.** Name the organ that produces sound.



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**13.** Why do erythrocytes perform anaerobic respiration only?



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**14.** Write the chemical reaction which is catalysed by the enzyme carbonic anhydrase.



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**15.** What term is used for volume of air breathed in and out during each normal effortless respiration?



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**16.** What is residual volume?



**Watch Video Solution**

**17.** What is the value of residual volume in normal human adult ?



**Watch Video Solution**

**18.** What is the path taken by air molecules into and through the nose ?



**Watch Video Solution**

**19.** Name the structure where inspired air is conditioned in human.



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**20.** If anyone holds his/her breath for 30 seconds, what will happen to his/her blood pH ?



**Watch Video Solution**



**21.** Write the full form : ERV



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**22.** Name the structure which separates nasal chambers and buccal cavity.



**Watch Video Solution**

**23.** How many molecules of oxygen can associate with a molecule of haemoglobin in

man?



**Watch Video Solution**

**24.** What is the normal value of tidal volume and total lung capacity in human?



**Watch Video Solution**

**25.** What is inspiratory capacity?



**Watch Video Solution**

**26.** Which nerves carry impulses from the respiratory center to diaphragm?



**Watch Video Solution**

**27.** Which nerves carry impulses from the respiratory center to the external intercostal muscles?



**Watch Video Solution**

**28.** What causes  $O_2$  to enter pulmonary capillaries from alveoli and to enter tissue cells from systemic capillaries?



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**29.** What are the average values of the following in a normal adult man : (i) Arterial  $P_{O_2}$  (ii) venous  $P_{O_2}$  (iii) vital capacity ?



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**30.** What is Adam's apple ?



**Watch Video Solution**

**31.** Why trachea does not collapse?



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**32.** Which lung (left or right) has cardiac notch?



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**33.** In which direction diaphragm moves during inspiration ?



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**34.** What is the volume of anatomical dead space air?



**Watch Video Solution**

**35.** Which gland in the body is swelled in lung cancer?



**Watch Video Solution**

**36.** At which height the symptoms of mountain sickness are seen?



**Watch Video Solution**

**37.** What is the rate of respiration/breathing in adult man per minute?



**Watch Video Solution**

**38.** What is the full form of COPD?



**Watch Video Solution**

**39.** What is dyspnoea?



**Watch Video Solution**



40. What is the value of total lung capacity in adults ?



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## Short Answer Type Questions

1. What is the normal composition of alveolar air.



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2. What is Tidal air (Tidal volume) ?



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3. (a) Mention the different organs involved in respiratory system .



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4. (b) What are the compartments of lungs air ?



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5. (c) Mention the percentage of oxygen in Inspired .Alveolar and Expired air.



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6. (a) What is vital capacity ?



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7. (b) What is the difference between pulmonary ventilation and alveolar ventilation?



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8. (a) Name the main muscle of Inspiration.



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9. (b) Explain the mechanism of (i) Quiet and (ii) Forced Expiration.



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10. A. What is the percentage of oxygen in (a) Inspired air at (i) Sea level (ii) 10,000 ft high altitude (b) Expired air, (c) Alveolar air?



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**11. B.** How much  $O_2$  is carried by (a) 100 ml arterial blood and (b) 100 ml venous blood? (c)

Why there is difficulty of respiration at 10,000 ft high altitude?



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**12.** Explain the following terms (a) Inspiratory reserve volume (b) Expiratory reserve volume.



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**13.** Explain the following terms (b) Expiratory reserve volume.



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**14.** (a) If we try to breath in and out through a long tube, will it be easy ? Give reasons.



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15. (b) What is the percentage  $CO_2$  in (i) Inspired air and (ii) Expired air?

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16. (c) State the functions of  $CO_2$  in our body.

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17. (a) What is chloride shift ?

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18. (b) Why more  $H_2CO_3$  is formed in RBC than in plasma?



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19. (c) How much  $O_2$  is carried by one g of Haemoglobin ?



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20. (d) How many molecules of  $O_2$  are combined with one molecule of Haemoglobin?



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21. (a) What is surfactant?



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22. (b) What is the air pressure within the lungs of man?



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**23.** Explain the following : (a) We can hold our breath for about 40-50 sec only.



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**24.** Explain the following :(b) At higher altitude  
(i) Respiration is hurried, (ii) RBC count is increased.



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**25. (a)** What is dead space air? What is its value in normal adult male ?



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**26. (b)** Name the respiratory centres and mention their location in brain stem.



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27. (a) How does  $CO_2$  enter the lungs from blood?



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28. (b) How does  $O_2$  enter the blood from lungs? (c) Name the membrane covering the lungs.



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29. (a) What is ventilation perfusion ratio?



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30. (b) What is the effect of raised  $CO_2$  concentration in arterial blood on respiratory rate ?



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**31. (a)** Why the chloride concentration of RBC in venous blood is more than that of RBC in arterial blood ?



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**32.** State the factors controlling respiration.



**Watch Video Solution**

**33.** From where the rhythm of respiration is generated in the human body?



**Watch Video Solution**

**34.** Explain why trachea does not collapse ?



**Watch Video Solution**

**35.** Mention the amount of  $CO_2$  in (a) 100 ml venous blood and (b) 100 ml arterial blood.





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**36.** Between  $O_2$  and  $CO_2$  which one is present more in arterial blood ?



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**37.** Why is the amount of  $CO_2$  less in expired air than that in alveolar air ?



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**38.** In which form is  $CO_2$  carried in venous blood ?



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**39.** (a) What is Apnoea ? (b) What are its causes? (c) What is Cheyne-stokes breathing ?



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**40.** (a) What is Mountain sickness? (b) What are its symptoms ?



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**41.** (a) What is Active and Passive Smoking? (b) What are the effects of smoking on respiratory system ?



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**42.** (a) What did you mean by anoxia or hypoxia? (b) Define anoxaemia?



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**43.** Mention the location of Pharynx and Larynx.



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**44.** What is Epiglottis? What is its function?



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**45.** When and why the voice of male becomes deeper than in female?



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**46.** State the position of Trachea in respiratory tract.



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**47.** Between left and right lungs, which one is comparatively smaller and why?



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**48.** What are Alveoli?



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**49.** What is Inspiratory capacity?



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**50.** Mention the number of lobes in left and right lungs.



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**51.** Name the muscles of forced expiration.



**Watch Video Solution**

**52.** State the functions of respiratory tract.





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**53.** What is Vital capacity? What is its volume?



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**54.** What do you mean by active and passive smoking ?



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**55.** Name two poisonous gases present in the smoke of cigarette.



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**56.** State why lack of oxygen occurs in the body in higher altitude



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**57.** State the causes of asthma



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58. What is the value of intrapulmonary pressure in normal and forced inspiration?



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59. What is Cyanosis?



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## 1. Inspiration and Expiration.



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## 2. Ligament and tendon



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## 3. Total lung capacity and vital capacity.



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4. What is vital capacity?



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5. Tidal volume and residual volume.



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6. Breathing and Respiration.



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## 7. Tracheole and Bronchiole



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## Long Answer Type Questions

### 1. What is respiratory tract?



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2. Give the location of larynx.



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3. State the functions of lungs



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4. Name the respiratory muscles involved in respiration



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5. What is Inspiration?



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6. What are the two nervous centre of respiration



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7. Mention different lung volumes



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**8. Define Inspiratory Reserve Volume**



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**9. Name the common respiratory diseases.**

What is Asthma? State its causes and mention its symptoms.



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**10. What is Hypoxia?**



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**11. What is Lung cancer? Mention the causes**



**Watch Video Solution**

**12. What is Tuberculosis ? State its symptoms and mention its treatments.**



**Watch Video Solution**

**13.** What is Mountain sickness? State its causes and mention the symptoms.



**Watch Video Solution**

**14.** What is Oxyhaemoglobin?



**Watch Video Solution**

**Ncert Questions**

1. Define the vital capacity . What is its significance.



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2. State the volume of air remaining in the lungs after a normal breathing .



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3. Define Nasopharynx



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4. What is Total Lung Capacity?



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5. What will be the  $P_{O_2}$  and  $P_{CO_2}$  in the atmospheric air compared to those in the alveolar air ?

(i)  $P_{O_2}$  lesser,  $P_{CO_2}$  higher (ii)  $P_{O_2}$  higher,  $P_{CO_2}$  lesser (iii)  $P_{O_2}$  higher,  $P_{CO_2}$  higher (iv)  $P_{O_2}$  lesser,  $P_{CO_2}$  lesser.



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6. What is the main cause of Emphysema?



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7. What will be the  $P_{O_2}$  and  $P_{CO_2}$  in the atmospheric air compared to those in the alveolar air ?



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8. What will be the  $P_{O_2}$  and  $P_{CO_2}$  in the atmospheric air compared to those in the alveolar air ?



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9. What is Diffusion?



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10. Define residual volume





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**11.** What is Asphyxia?



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**12.** What happens to the respiratory process in a man going up a hill?



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**13.** What is the site of gaseous exchange in an insect?



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**14.** Define oxygen dissociation curve. Can you suggest any reason for its sigmoidal pattern?



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**15.** Have you heard about hypoxia? Try to gather information about it, and discuss with your friends.



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**16.** Distinguish between (a) IRV and ERV



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**17. (b)** Inspiratory capacity and Expiratory capacity.



**Watch Video Solution**

**18. (c)** Vital capacity and Total lung capacity.



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**19.** What is Tidal volume? Find out the Tidal volume (approximate value) for a healthy

human in an hour.



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