



**CLASS 24**

**17**

**Breathing and  
Exchange of Gases**



Q.1 The structure which prevents the entry of food into the windpipe is -

- (a) Gullet
- (b) Glottis
- (c) Tonsil
- (d) Epiglottis

Q.2 Intercostal muscles are found attached with-

- (a) Diaphragm
- (b) Ribs
- (c) Pleura
- (d) Lungs

Q.3 The amount of air remaining in the air passages and alveoli at the end of quiet respiration is called -

- (a) Tidal volume
- (b) Inspiring reserve volume
- (c) Inspiratory capacity
- (d) Functional residual capacity

Q.4 When 1200 mL air is left in the lungs, it is called-

- (a) Vital capacity
- (b) Tidal volume
- (c) Residual volume
- (d) Inspiratory reserve volume

Q.5 In anaerobic respiration -

- (a) O<sub>2</sub> is taken in.

(b) CO<sub>2</sub> is taken in.

(c) O<sub>2</sub> is given out.

(d) CO<sub>2</sub> is given out.

Q.6 (i) in CO, in your blood, which causes\_ (ii) in pH, would cause your breathing to speed up.

(a) (i) An increase, (ii) arise

(b) (i) An increase, (ii) a drop

(c) (i) A decrease, (ii) arise

(d) (i) A decrease, (ii) a drop

Q.7 Carbonic anhydrase is found in high concentration in-

(a) Leucocytes

(b) Blood plasma

(c) Erythrocytes

(d) Lymphocytes

Q.8 Every 100 ml of deoxygenated blood delivers approximately

(a) 5 ml of CO<sub>2</sub> to the alveoli

(b) 6 ml of CO<sub>2</sub> to the plasma

(c) 4 ml of CO<sub>2</sub> to the alveoli

(d) 7 ml of CO<sub>2</sub> to the plasma

Q.10 Respiratory mechanism is controlled by-

(a) Central nervous system

(b) Sympathetic nervous system

(c) Parasympathetic nervous system



(d) Autonomic nervous system

Q.11 Which of the following group are supported by incomplete cartilaginous rings?

(a) Pharynx, primary & tertiary bronchi and initial bronchioles

(b) Trachea, primary & secondary bronchi, and initial bronchioles

(c) Larynx, primary, secondary and tertiary bronchi, and initial bronchioles

(d) Trachea, primary, secondary and tertiary bronchi, and initial bronchioles

Q.12 Thoracic chamber is formed (A) by the vertebral column, (B) by the sternum, (C) by the ribs and on the (D) side by the dome shaped diaphragm. Identify A, B, C and D.

(a) A-dorsally, B-ventrally, C-laterally, D-lower

(b) A-ventrally, B-laterally, C-dorsally, D-upper

(c) A-laterally, B-ventrally, C-dorsally, D-lower

(d) A-dorsally, B-laterally, C-ventrally, D-upper

Q.13 Which of the following statement is correct?

(a) Tracheal rings are of hyaline cartilage

(b) Dorsal side of thoracic chamber is formed by sternum

(c) Expiration occurs when there is negative pressure in lungs

(d) All of the above

Q.14 With reference to human respiration, which is correct?

(a) Pulmonary ventilation is equal to alveolar ventilation.

(b) Alveolar ventilation is more than pulmonary ventilation.

(c) Alveolar ventilation is less than pulmonary ventilation.

(d) Pulmonary ventilation is less than alveolar ventilation.

Q.15 Which one of the following statements is correct?

(a) All animals require a medium for cellular respiration.

(b) In all animals oxygen is transported by blood.

(c) All animals need oxygen for respiration.

(d) All of the above

Q.16 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<sub>2</sub>) is carried by haemoglobin as carbamino haemoglobin.

(c) Cigarette smoking may lead to inflammation of bronchi.

(d) Neural signals from pneumotaxic centre in pons region of brain can increase the duration of inspiration.



Q.17 Which of the following statements is correct?

- (a) Inspiration is a passive process whereas expiration is active.
- (b) Inspiration is active process whereas expiration is passive.
- (c) Inspiration and expiration are active process.
- (d) Inspiration and expiration are passive process.

Q.18 What happens during Inspiration?

- (i) Size of our chest increases.
- (ii) Size of our chest decreases.
- (iii) Carbon dioxide is removed out from body.
- (iv) Air enters our lungs.

- (a) (i) and (ii)
- (b) (i) and (iv)
- (c) (ii) and (iii)
- (d) (ii) and (iv)

Q.19 Which of the following statements are true/false?

- (i) The blood transports  $\text{CO}_2$  comparatively easily because of its higher solubility.
- (ii) Approximately 8-.9% of  $\text{CO}_2$  is transported being dissolved in the plasma of blood.
- (iii) The carbon dioxide produced by the tissues, diffuses passively into the blood

stream and passes into red blood corpuscles and react with water to form  $\text{H}_2\text{CO}_3$

- (iv) The oxyhaemoglobin ( $\text{HbO}_2$ ) of the erythrocytes is basic.
- (v) The chloride ions diffuse from plasma into the erythrocytes to maintain ionic balance.

- (a) (i), (iii) and (v) are true; (ii) and (iv) are false
- (b) (i), (iii) and (v) are false; (ii) and (iv) are true
- (c) (i), (ii), and (iv) are true; (iii) and (v) are false
- (d) (i), (ii) and (iv) are false; (iii) and (v) are true

Q.20 Which one of the followings statements is not correct?

- (a) Total volume of air a person can expire after a normal inspiration is called expiratory capacity.
- (b) Binding of oxygen with haemoglobin is primarily related to partial pressure of  $\text{CO}_2$ .
- (c) Every 100 ml of deoxygenated blood delivers approximately 4 ml of  $\text{CO}_2$  to the alveoli.
- (d) Every 100 ml of oxygenated blood can deliver around 5 ml of O, to the tissues under normal physiological conditions.

Q.21 Match the column I (Animals) with column II (Mode of respiration) and choose the correct option.

Column-I

Column-II

(Animals)	(Mode of respiration)
A. Earthworm	I. Pulmonary
B. Human	II. Branchial
C. Prawn	III. Tracheal
D. Insects	IV. Cutaneous

(a) A-I; B-II; C-III; D-IV

(b) A-IV; B-II; C-I; D-III

(c) A-IV; B-I; C-II; D-III

(d) A-III; B-II; C-IV; D-I

Q.22 Which one of the following four organs of respiratory system is correctly matched with its characteristics?

A. Bronchi - Two branches of the trachea that brings air into the lungs.

B. Trachea - Small flap that prevents food from entering.

C. Diaphragm - Dome shaped muscle that pushes on the lungs during exhalation.

D. Alveoli - Pair of organs that inflate as you inhale and deflate as you exhale.

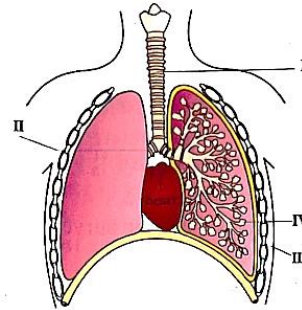
(a) A and B only

(b) C and D only

(c) A and Conly

(d) B and Donly

Q.23 The given diagram represents the human respiratory system with few structures labelled as I, II, III and IV.



The exchange of gases takes place in which labelled structure?

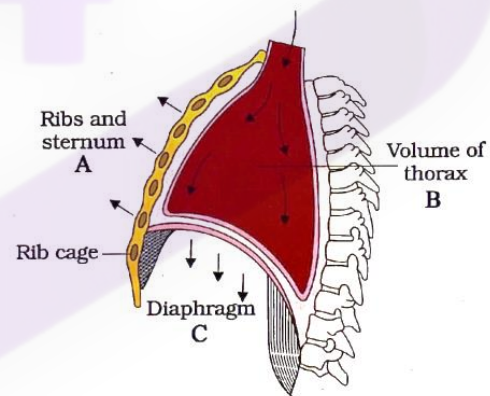
(a) I-Trachea

(b) II-Bronchi

(c) III-Bronchioles

(d) IV-Alveoli

Q.24 The figure given below shows the mechanism of breathing. Identify the stage (X) of breathing explained & A, B and C marked in the figure.



(a) X - Expiration, A- raised, B - decreased, C-relaxed

(b) X - Inspiration, A- raised, B - decreased, C-relaxed

(c) X - Expiration, A - raised, B - increased, C-contracted



(d) X - Inspiration, A- raised, B - increased, C- contracted

Q.25 About 70% of CO<sub>2</sub> is transported as -

- (a) Carbonic acid
- (b) Carboxyhaemoglobin
- (c) Bicarbonates
- (d) Carbamino compounds

Q.26 Even when there is no air in it, human trachea does not collapse due to presence of-

- (a) Bony rings
- (b) Turgid pressure
- (c) Chitinous rings
- (d) Cartilaginous rings

Q.27 Which of the following are the stages of respiration in correct order?

A-Gaseous transport

B-Cellular respiration

C-Tissue respiration

D-Breathing

- (a) A-D-C-B
- (b) D-A-C-B
- (c) D-A-B-C
- (d) D-C-B-A

Q.28 If a person is suffering from emphysema, his/her-

- (a) Bronchioles are found damaged

(b) Alveolar walls are found damaged

(c) The plasma membrane is found damaged

(d) The respiratory muscle is found damaged

Q.29 A graph is plotted between pO<sub>2</sub> and percentage saturation of Hb with O, is known as -

- (a) O<sub>2</sub> association curve
- (b) CO<sub>2</sub>-O, dissociation curve
- (c) O, dissociation curve
- (d) CO<sub>2</sub>-O<sub>2</sub> association curve

Q.30 After taking a long deep breath, we do not respire for some seconds due to - -

- (a) More CO<sub>2</sub> in blood
- (b) More O<sub>2</sub> in blood
- (c) Less CO<sub>2</sub> in blood
- (d) Less O<sub>2</sub> in blood

Q.31 The process of oxidation of glucose during which CO<sub>2</sub>, H<sub>2</sub>O and energy are produced is known as -

- (a) Breathing
- (b) Inspiration
- (c) Respiration
- (d) Expiration

Q.32 At which level of thoracic vertebra, trachea divides -

- (a) 2nd thoracic vertebra
- (b) 5th thoracic vertebra
- (c) 3d thoracic vertebra





(d) 4th thoracic vertebra

Q.33 What is the last step involved in respiration?

- (a) Diffusion of gases
- (b) Breathing
- (c) Utilisation of  $O_2$  by body cells and resultant release of  $CO_2$
- (d) Transport of gases

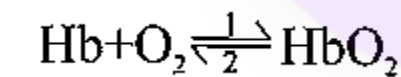
Q.34 The breathing rate of a normal healthy man is -

- (a) 8-18 times/min
- (b) 6-12 times/min
- (c) 16-24 times/min
- (d) 12-16 times/min

Q.35 What is the value of tidal volume in a normal healthy man?

- (a) Approximately 6000-8000 ml/min
- (b) 1000-1100 ml/min
- (c) 2500-3000 ml/min
- (d) Approximately 8000-12000 ml/min

Q.36.



Select (1) and (2) from the given options.

- (a) (1) is tissues and (2) is lungs
- (b) (1) is lungs and (2) is blood
- (c) (1) is blood and (2) is lungs
- (d) (1) is lungs and (2) is tissues

Q.37 A specialised centre known as respiratory rhythm centre regulates respiration. It is located in -

- (a) Pons
- (b) Medulla oblongata
- (c) Cerebrum
- (d) Cerebellum

Q.38 Which substances when present in high level can activate the chemo sensitive area present adjacent to rhythm centre?

- (a)  $CO_2$  and  $O_2$
- (b)  $HCO_3^-$  ions and  $O_2$
- (c)  $CO_2$  and  $H^+$  ions
- (d) Hand  $HCO_3$  ions

Q.39 What is the function of respiratory part of human respiratory system?

- (a) It clears the incoming air from foreign particles
- (b) It brings the temperature of air up to the body temperature
- (c) It transports the atmospheric air
- (d) It exchanges  $O_2$  and  $CO_2$  between blood and atmospheric air

Q.40 Ventrally and laterally, the thoracic chamber is formed by -

- (a) Diaphragm and sternum respectively
- (b) Ribs and sternum respectively
- (c) Sternum and ribs respectively



(d) Vertebral column and diaphragm respectively

Q.41 During inspiration, the volume of thoracic cavity increases because of-

(a) Contraction of diaphragm and external intercostal muscles

(b) Relaxation of diaphragm and external intercostal muscles

(c) Contraction of diaphragm and relaxation of external intercostal muscles

(d) Relaxation of diaphragm and contraction of external intercostal muscles

Q.42 Volume of thoracic chamber increases in antero- posterior and dorso-ventral axis in rabbit by -

(a) Contraction of diaphragm and external intercostal muscles respectively

(b) Relaxation of diaphragm and external intercostal muscles respectively

(c) Relaxation of diaphragm and abdominal muscles respectively

(d) Contraction of abdominal muscles and relaxation of external intercostal muscles respectively

Q.43 Expiration occurs due to -

(a) Relaxation of diaphragm and external intercostal muscle

(b) Contraction of internal intercostal muscles and diaphragm

(c) Relaxation of abdominal and internal intercostal muscles

(d) Contraction of diaphragm and relaxation of abdominal muscles

Q.44 What happens to the volume of pulmonary cavity when there is an increase in the volume of thoracic chamber?

(a) It decreases

(b) It increases

(c) It remains same

(d) First decreases and then increases

Q.45 Diaphragm is a dome-shaped muscular structure which separates -

(a) Coelomic cavity from pelvic cavity

(b) Pleural cavity from thoracic cavity

(c) Thoracic cavity from abdominal cavity

(d) Pelvic cavity from abdominal cavity

Q.46 How many of the following statements are correct?

A.  $O_2$  is utilised by the organisms to indirectly break down nutrient molecules.

B. Process of exchange of  $CO_2$  from the atmosphere with  $O_2$  produced by the cells is called breathing.

C. Mammals have an ill developed respiratory system.

D. We have a pair of external nostrils, which opens outside above the upper lips.

(a) Only one

(b) Only two

(c) Three



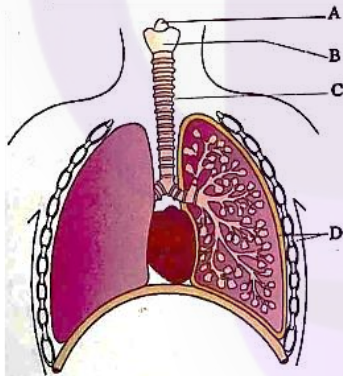
(d) All are correct

Q.47 Match the columns and choose the correct answer from the options given below-

	Column-I (Animal)		Column-II (Respiratory organ)
A	Sponge	i	Lungs
B	Insects	ii	Gills
C	Aquatic arthropoda	iii	Absent
D	Fish	iv	Trachea
E	Mammal		

	A	B	C	D	E
(a)	i	ii	iii	iv	i
(b)	iii	iv	i	ii	i
(c)	iii	iv	ii	ii	i
(d)	iii	ii	iv	i	ii

Q.48 Select the wrong statement about the diagram given below-



(a) 'B' is a cartilaginous box which helps in sound production.

(b) 'A' prevent the entry of food into the larynx.

(c) 'C' is a straight tube extending upto the left thoracic cavity, which divides at the level of 5th thoracic vertebrae.

(d) 'D' is double layered, and a fluid is present in between them

Q.49 Arrange the following steps of respiration in a proper sequence-

A. Breathing

B. Diffusion of gases across alveolar membrane

C. Transport of gases by the blood

D. Diffusion of  $O_2$  and  $CO_2$  between blood and tissues

E. Utilisation of  $O_2$  by the cells for catabolic reactions and resultant release of  $CO_2$

(a) A, B, C, D, E

(b) A, E, B, C, D

(c) A, C, B, D, E

(d) A, B, D, E, C

Q.50 Which of the following is not a function of conducting part of respiratory tract?

(a) Transport of atmospheric air to alveoli

(b) Humidification

(c) Brings the air to body temperature

(d) Site of actual diffusion of  $O_2$  and  $CO_2$  between blood and atmospheric air

Q.51 How many of the following parts of respiratory tract are supported by incomplete cartilaginous rings?

Trachea, alveoli, primary bronchi, secondary bronchi, alveolar ducts, initial bronchioles-

(a) Six

- (b) Five
- (c) Four
- (d) Three

Q.52 Which of the following is not a property of alveoli?

- (a) Irregular thin walled
- (b) Highly vascularised
- (c) Supported by incomplete rings
- (d) Enormous in number

Q.53 Inspiration can occur if the-

- (a)  $P_L > P_A$
- (b)  $P_L < P_A$
- (c)  $P_L = P_A$
- (d) Size of thoracic cavity decreases

( $P_L$ -pressure in lungs)

( $P_A$ -pressure in atmosphere)

Q.54 Which is wrong with respect to expiration?

- (a) Ribs and sternum to original position
- (b) Air expelled from lungs
- (c) Volume of thorax decrease
- (d) Diaphragm contracted

Q.55 Diffusion of gases occurs in the alveolar region only and not in the other parts of respiratory system. Why?

- (a) Alveoli are very few in number, very thin, irregular walled and highly vascularised

(b) Alveoli are very large in number, very thin, irregular walled and poorly vascularised

(c) Alveoli are very large in number, very thin, irregular walled and highly vascularised

(d) Alveoli are very large in number, very thick regular walled and poorly vascularised

Q.56 The thoracic chamber is formed dorsally by (A) and on the lower side by (B). Identify (A) and (B) structures in the given para –

	A	B
(a)	Sternum	Vertebral column
(b)	Vertebral column	Dome shaped diaphragm
(c)	Ribs	Dome shaped diaphragm
(d)	Sternum	Dome shaped diaphragm

Q.57 Which of the following represents the correct combinations?

	A	B
(a)	Exchange part of respiratory tract	Brings the air to the body temperature
(b)	Conducting part of respiratory tract	Site of actual diffusion of $O_2$ and $CO_2$
(c)	Inspiration	Initiated by contraction of diaphragm which increases volume of thoracic chamber in the antero-posterior axis
(d)	Lungs	Are situated in the abdominal chamber which is anatomically an air tight chamber

Q.58 If the  $CO_2$  concentration in the blood increases, the breathing rate will-

- (a) Increase
- (b) Decrease
- (c) Stop



(d) No affect

Q.59 Increase  $\text{CO}_2$  & temperature will cause the O/Hb. dissociation curve to shift-

(a) Towards left

(b) Towards right

(c) Become more sigmoid

(d) Flattening of curve

Q.60 Maximum  $\text{CO}_2$  is transported from tissues to lungs in the form of-

(a) Dissolved form in plasma

(b) Carbamino compounds

(c) Bicarbonates

(d) Carboxyhaemoglobin

Q.61 Under a given oxygen concentration in blood, dissociation of oxyhaemoglobin will increase if-

(a) pH of blood rises

(b) pH of blood falls

(c)  $\text{CO}_2$  concentration of blood falls

(d) Free fatty acid concentration in blood falls

Q.62 Find out the amount of O, which is delivered by 100 ml of oxygenated blood to the tissue under normal physiological conditions -

(a) 50 ml

(b) 20 ml

(c) 5 ml

(d) 25 ml

Q.63 What is true about regulation of respiration?

(a) Respiratory rhythm centre lies on pons region.

(b) The role of oxygen in the regulation of respiratory rhythm is quite insignificant

(c) Chemo sensitive area can recognise changes in  $\text{O}_2$

(d) Neural signals from cerebellum can increase the duration of inspiration.

Q.64 Tidal air in mammalian lungs is -

(a) The total maximum air that can be driven into the lungs

(b) The air that normally goes in and comes out of the lungs during breathing

(c) The air that is left in the lungs after normal expiration

(d) The air that can be expelled out forcibly after the normal expiration

Q.65 In "emphysema" -

(a) Trachea is constricted

(b) Diaphragm and costal muscles do not contract

(c) Many alveoli collapse together to form large chambers because of the destruction of alveolar wall

(d)  $\text{O}_2$  absorption decreases with haemoglobin

Q.66 What is the total vital capacity of man?

(a) About 4500 cc



- (b) About 5500 cc
- (c) About 2000 cc
- (d) About 2200 cc

Q.67 Choose the correct equation-

- (a) Total capacity of lungs = Vital capacity + Tidal volume
- (b) Total capacity of lungs = Vital capacity + Residual volume
- (c) Vital capacity of lungs = Tidal volume + complementary volume
- (d) Total capacity of lungs = Tidal volume + Complementary volume + Supplementary volume

Q.68 After maximum inspiration when a person exhales out the maximum possible volume of air, it is called -

- (a) Residual volume
- (b) Functional residual capacity
- (c) Vital capacity
- (d) Total lung capacity

Q.69 If in a person functional residual capacity is 2300 ml, residual volume is 1200 ml and inspiratory capacity is 3500 ml then find out its vital capacity-

- (a) 5800 ml
- (b) 7000 ml
- (c) 4600 ml
- (d) 2300 ml

Q.70 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

Q.71 Inspiration can occur when -

- (a) Intra pulmonary pressure (IPP) is less than atmospheric pressure
- (b) IPP is more than atmospheric pressure
- (c) IPP is equal to atmospheric pressure
- (d) All of the above

Q.72 Which statements are correct?

- A. During inspiration intra pulmonary pressure is less than the atmospheric pressure.
- B. During expiration diaphragm contract.
- C. Epiglottis is bony flap which prevent entry of food into the larynx.
- D. During forceful expiration abdominal muscles contract.

- (a) A, B, C, D are correct
- (b) A and D are correct
- (c) B and C are correct
- (d) A and C are correct

Q.73 Find out partial pressure of O, and CO, in oxygenated blood.



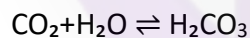
- (a)  $pO_2=104$  mmHg;  $pCO_2=40$  mmHg
- (b)  $pO_2=159$  mmHg;  $pCO_2=0.3$  mmHg
- (c)  $pO_2=40$  mmHg;  $pCO_2=45$  mmHg
- (d)  $pO_2=95$  mmHg;  $pCO_2=40$  mmHg

Q.74 Which factors are favourable for the formation of oxyhaemoglobin?

- A. High acidity
- B. Low  $pCO_2$
- C. Lesser  $H^+$  concentration
- D. Lower temperature

- (a) A and B
- (b) A, B and C
- (c) B and C
- (d) B, C and D

Q.75 Which of the following facilitates the following reactions?



- (a) Chloride shift
- (b) Carbonic anhydrase
- (c) Hamburger phenomenon
- (d) Bohr effect

Q.76 What will be the  $pO_2$ , and  $pCO_2$  in the alveolar air compared to those in the tissue?

- (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

Q.77 Which of the following centre can alter the duration of inspiration or there by respiratory rate?

- (a) Dorsal respiratory centre
- (b) Inspiratory centre
- (c) Pneumotaxic centre
- (d) Expiratory centre

Q.78 Due to which forces the air from outside move into the lungs?

- (i) An increase in pulmonary volume
- (ii) Decrease the intra-pulmonary pressure
- (iii) Reduction in thoracic volume

- (a) I and ii
- (b) i, ii, iii
- (c) I and iii
- (d) ii, iii

Q.79 Which steps are involved in respiration?

- (i) Pulmonary ventilation
- (ii) Diffusion of gases
- (iii) Transport of gases by the blood
- (iv) Utilisation of  $O_2$  by the cells.

- (a) i, ii, iii, iv
- (b) i, ii, iii
- (c) i, ii, iv
- (d) ii, iii

Q.80 What is the expiratory reserve volume of a person?





- (a) TV+RV
- (b) FRC-RV
- (c) FRC-TV
- (d) FRC-IRV

Q.81 What is the function of pleural fluid?

- (a) Reduces friction on the lung surface
- (b) Protection from external shocks
- (c) Provide moisture
- (d) All of the above

Q.82 Which of the following part of respiratory system is not a part of conducting zone?

- (a) External nostrils to terminal bronchioles
- (b) Alveoli and their ducts
- (c) Larynx to primary bronchi
- (d) Primary bronchi to terminal bronchioles

Q.83 Expiration can occur if-

- A. Intrapulmonary pressure is higher than the atmospheric pressure.
- B. Intrapulmonary pressure and atmospheric pressure are equal.
- C. Intrapulmonary pressure is less than atmospheric pressure.
- D. Muscles of diaphragm relax.

- (a) A, D
- (b) B, C
- (c) C, D

- (d) A, B

Q.84 Select the correct option for inspiration.

- (a) Inspiration is a passive process
- (b) During this process diaphragm and EICM contracts
- (c) Intrapulmonary pressure is slightly above the atmospheric pressure
- (d) Intra alveolar pressure is slightly more than the atmospheric pressure

Q.85 is a difficulty in breathing causing wheezing due to inflammation of bronchi and bronchioles.

- (a) Asthma
- (b) Emphysema
- (c) Asbestosis
- (d) Fibrosis

Q.86 Chronic disorder in which alveolar walls are damaged is -

- (a) Asthma
- (b) Emphysema
- (c) Pneumonia
- (d) Occupational respiratory disorders

Q.87 How many of the following statements are correct?

- A. Human beings have a significant ability to maintain and moderate the respiratory rhythm to suit the demands of the body tissues.





B. Pneumotaxic centre can moderate the functions of the respiratory rhythm centre.

C. A chemo sensitive area is situated adjacent to the rhythm centre which is highly sensitive to  $\text{CO}_2$  and hydrogen ions.

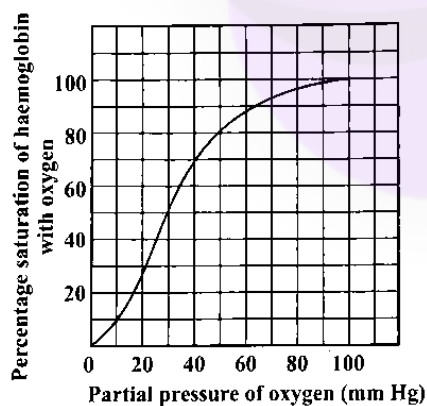
D. The role of oxygen in the regulation of respiratory rhythm is quite insignificant.

- (a) Only A
- (b) Only B
- (c) Only A and B
- (d) All

Q.88 At the level of which thoracic vertebrae does trachea divide into right and left primary bronchi?

- (a) 5
- (b) 6
- (c) 9
- (d) 4

Q.89 Shifting of the curve to right takes place in the case of



- (a) Rise in  $\text{Pco}_2$
- (b) Fall in pH

(c) Rise in temperature

(d) All of the above

Q.90 Four statements (A-D) are given. How many statements are correct?

A.  $\text{O}_2$  can bind with haemoglobin in a reversible manner to form oxyhaemoglobin.

B. Each haemoglobin molecule can carry a maximum of four molecules of  $\text{O}_2$ .

C. Binding of oxygen with haemoglobin is primarily related to partial pressure of  $\text{O}_2$ .

D. About 97 percent of  $\text{O}_2$  is transported by RBC in the blood.

- (a) Two
- (b) Four
- (c) Three
- (d) One

Q.91 Which of the following detect the levels of  $\text{CO}_2$  and hydrogen ions in blood?

- (a) Carotid bodies and aortic body.
- (b) Carotid labyrinth and chemo sensitive region present near respiratory centre.
- (c) Respiratory rhythm centre present in medulla region.
- (d) Chemo sensitive region present near the respiratory center.

Q.92 Which of the following statement is wrong for respiration?

- (a) Breathing is a process, in which atmospheric air enters into the body and  $\text{CO}_2$  is removed out



(b) Gaseous exchange takes place through alveolar surface

(c) Transport of gases takes place through blood

(d) Cells utilise  $N_2$  and release  $CO_2$  for anabolic processes

Q.93 If  $O_2$  concentration in tissue is as high as at the respiratory surface-

(a) Oxyhaemoglobin would dissociate to supply  $O_2$  to the tissue

(b) Haemoglobin would combine with more  $O_2$  at respiratory surface

(c) Oxyhaemoglobin would not dissociate to supply  $O_2$  to the tissue

(d)  $CO_2$  will interfere the  $O_2$  transport

Q.94 The blood leaving the lungs has all its haemoglobin oxygenated and gives up  $O$ , to the tissue because-

(a) Tissue can absorb  $O_2$  from oxyhaemoglobin

(b)  $O_2$  concentration is lower at tissue level than in the lungs

(c) Oxyhaemoglobin undergoes reduction

(d) None of these

Q.95 If total  $O_2$  transported by blood from lungs to cell in a minute is 1000 ml. Then the volume of  $O_2$  transported by blood found dissolved in plasma is -

(a) 970 ml

(b) 30 ml

(c) 1000 ml

(d) Nil

Q.96 The chloride content of RBC will be higher than that of plasma in-

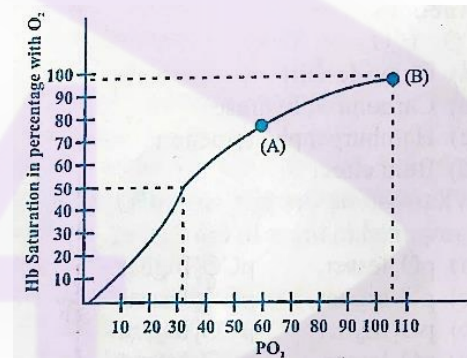
(a) Systemic arteries and pulmonary veins

(b) Systemic veins and pulmonary arteries

(c) Systemic and pulmonary arteries

(d) Systemic and pulmonary veins

Q.97 The point A & B in the above diagram are located at-



(a) 'A' at tissue (systemic organ) level; 'B' at the level of pulmonary capillaries

(b) 'A' at pulmonary capillary level; 'B' at tissue (systemic organ) level

(c) 'A' in the pulmonary vein; 'B' in the pulmonary artery

(d) More than one options are correct

Q.98 Identify false statement -

(a) Dead space air is 150 ml

(b) Air filled in bronchial tree is the dead space air

(c) Bronchial tree collapses during expiration



(d) Respiratory tree is inflated during inspiration

Q.99 Dead space air is -

- (a) The amount of air remaining in the alveoli
- (b) The amount of air left behind in lungs at the end of deep expiration
- (c) The amount of air taken in and out
- (d) The air left in the bronchial tree

Q.100 In the alveoli, dissociation of CO<sub>2</sub> from carbaminohaemoglobin occur, due to -

- (a) pCO<sub>2</sub> is high and pO<sub>2</sub> is low
- (b) pCO<sub>2</sub> is low and po<sub>2</sub> is high
- (c) PCO<sub>2</sub> and po<sub>2</sub> are high
- (d) pCO<sub>2</sub> and po<sub>2</sub> are low

Q.101 Which of the following pulmonary volume can't be measured by spirometer directly?

- (a) Tidal volume
- (b) Vital capacity
- (c) Inspiratory capacity
- (d) Residual volume

Q.102 The PH of venous blood is only slightly more acidic than the pH of arterial blood because-

- (a) CO<sub>2</sub> is a weak base
- (b) There is no carbonic anhydrase in the venous blood
- (c) The H generated from H<sub>2</sub>CO<sub>2</sub> is buffered by HCO<sub>2</sub> in venous blood

(d) The H generated from H<sub>2</sub>CO<sub>2</sub> is buffered by deoxyhaemoglobin in venous blood

Q.103 The epithelial tissue presents on the inner surface of bronchioles and trachea -

- (a) Squamous
- (b) Cuboidal
- (c) Glandular
- (d) Ciliated

Q.104 Which of the following respiratory volume or capacity can differentiated live born or dead born child?

- (a) Tidal volume
- (b) Residual volume
- (c) Inspiratory reserve volume
- (d) Vital capacity

Q.105 Match the column I with column II.

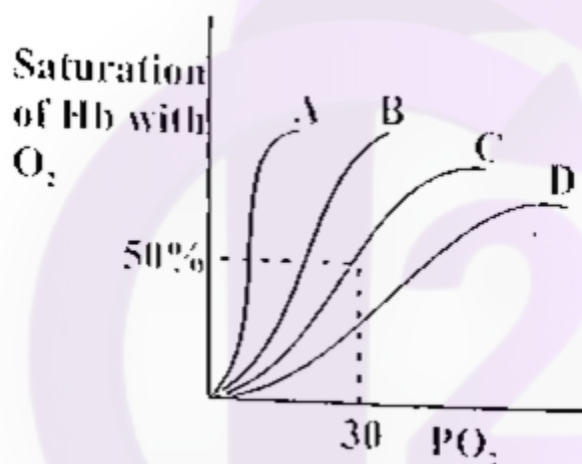
Column I	Column II
A. Tracheal tubes	I. Arachnida
B. Gills	II. Frog
C. Moist skin	III. Cockroach
D. Book lungs	IV. Fishes

	A	B	C	D
(a)	III	IV	II	I
(b)	III	I	IV	II
(c)	IV	III	II	I
(d)	IV	II	I	III

Q.106 If a large number of people are enclosed in a room then-

- (a) Oxygen decreases and CO<sub>2</sub> increases
- (b) Oxygen increases and CO<sub>2</sub> decreases
- (c) Oxygen and CO<sub>2</sub> decreases
- (d) Oxygen and CO<sub>2</sub> increases

Q.107 Pick out the correct statements regarding-



- A. Curve 'C' may be normal curve.
- B. Curve 'A' may be for myoglobin
- C. Curve 'B' represents saturation of Hb at low PO
- D. Curve 'D' represents lower PCO<sub>2</sub> E. Curve 'B' represents higher PCO<sub>2</sub>,

- (a) A, B, C, D
- (c) A, B, D
- (b) A, B, C
- (d) All are correct

Q.108 Hamburger's phenomenon explains -

- (a) HCO<sub>3</sub><sup>-</sup> shift

- (b) Sodium shift
- (c) Chloride shift
- (d) Hydrogen shift

Q.109 Hb most strongly combines with -

- (a) CO<sub>2</sub>
- (b) CO
- (c) O<sub>2</sub>
- (d) O<sub>3</sub>

Q.110 Oxidised haemoglobin may be called -

- (a) Myoglobin
- (b) Methaemoglobin
- (c) Oxyhaemoglobin
- (d) Carbaminohaemoglobin

Q.111 Which of the following does not occur during transport of CO<sub>2</sub> in man?

- (a) Formation of Carboxyhaemoglobin
- (b) Chloride shift
- (c) Formation of carbonic acid
- (d) Haldane effect

Q.112 Forceful expiration is mediated via -

- (a) Dorsal respiratory group of Neurons
- (b) Ventral respiratory group of Neurons
- (c) Cerebellum
- (d) Hering Breuer Reflex

Q.113 The nerve impulses which stimulate the intercostal muscles and diaphragm to permit breathing, originate in the -



- (a) Cerebellum
- (b) Pons
- (c) Hypothalamus
- (d) Medulla oblongata

Q.114 Which of the following statement is wrong?

- (a) Foetal haemoglobin has a higher affinity for  $O_2$  than adult haemoglobin.
- (b) Oxygen dissociation curve for myoglobin is hyperbolic.
- (c) Oxygen dissociation curve for foetal haemoglobin will appear on the left side with respect to maternal haemoglobin.
- (d) Expiratory centre lies in pons and inspiratory centre lies in medulla.

Q.115 Which of the following cause increased strength of inspiratory as well as expiratory signal?

- (a) Decreased concentration of  $CO_2$  in arterial blood.

(b) Decreased concentration of  $CO_2$  in venous blood.

(c) Decreased concentration of  $H^+$  in arterial blood.

(d) Decreased PH of arterial blood.

Q.116 Which of the following statement correctly defines "Bohr's effects"?

- (a)  $pH \downarrow$ , dissociation of oxyhaemoglobin
- (b)  $PCO_2 \uparrow$ , dissociation of oxyhaemoglobin
- (c)  $PO_2 \downarrow$ , dissociation of oxyhaemoglobin
- (d) All of these

Q.117 What is true about Haldane effect?

- A. Occurs at the level of lungs.
- B. Diffusion of  $CO$ , in alveoli from blood
- C. Formation of oxyhaemoglobin

- (a) A and C
- (b) A, B and C
- (c) B and C
- (d) None of these



## Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
d	b	d	c	d	b	c	c	c	a	d	a	a	c	a	a	b	b	a	b
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
c	c	d	d	c	d	b	b	c	c	c	b	c	d	a	d	b	c	d	c
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
a	a	a	b	c	b	c	c	a	d	c	c	b	d	c	b	c	a	b	c
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
b	c	b	b	c	a	b	c	c	b	a	b	d	d	b	b	c	a	a	b
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
d	b	a	b	a	b	d	a	d	b	a	d	c	b	b	b	a	c	d	b
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117			
d	d	d	b	a	a	b	c	b	b	a	b	d	d	d	b	b			

