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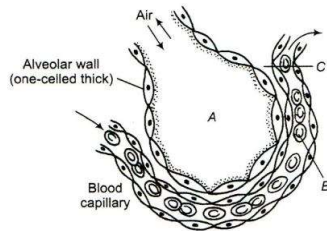
BIOLOGY

BREATHING AND EXCHANGE OF GASES

Single Correct Answer Type

- Each haemoglobin molecule can carry maximum of
 - Two molecules of O_2
 - Three molecules of O_2
 - Four molecules of O_2
 - One molecules of O_2
- Hypoxia is caused due to
 - Lesser O_2 in atmosphere
 - Lesser RBC in blood
 - Lesser CO_2 in atmosphere
 - Both (a) and (b)
- During oxygen transport, the oxyhaemoglobin at the tissue level liberates oxygen to the cells because
 - O_2 concentration is high and CO_2 is low
 - O_2 concentration is low and CO_2 is high
 - O_2 tension is low and CO_2 tension is high
 - O_2 tension is high and CO_2 tension is low
- O_2 exchange with CO_2 by simple diffusion over the entire body surface takes place in
I. sponges II. Coelenterates III. Flatworms
Select the correct option to complete the given statement
 - I and II
 - II and III
 - I and III
 - All of the above
- Breathing involves ...A... during which atmospheric air is drawn in and ...B... by which the alveolar air is released out.
Choose the correct option for A and B to complete the given NCERT statement
 - A-expiration; B-osmosis
 - A-expiration; B-inspiration
 - A-inspiration; B-expiration
 - A-inspiration; B-diffusion
- If a large number of people are enclosed in a room, then
 - Oxygen decreases and carbon dioxide increases
 - Oxygen increases and carbon dioxide decreases
 - Both oxygen and carbon dioxide decreases
 - Both oxygen and carbon dioxide increases
- The total number of lobes and alveoli present in both the lungs of man are
 - 17 and 30 million, respectively
 - 5 and 300 million, respectively
 - 19 and 300 million, respectively
 - 18 and 300 lakh, respectively
- Which of the following combines irreversibly with blood haemoglobin?
 - SO_2
 - O_2
 - CO
 - CO_2
- Identify the correct group of statements
 - Oxygen is carried by haemoglobin
 - Oxygen is carried by carbonic anhydrase
 - CO_2 is carried by haemoglobin
 - SO_2 is carried by haemoglobin
 - Only oxygen is transported by the blood
 - Only CO_2 is transported by the bloodChoose the correct option
 - I and VI
 - II and III
 - IV and V
 - I and III
- What is true about RBCs in humans?
 - They carry about 20-25 per cent of carbon dioxide
 - They transport 99.5 per cent of oxygen

- c) They transport about 80 per cent oxygen only and the rest 20 per cent of it is transported in dissolved state in blood plasma
 d) They do not carry carbon dioxide at all
11. Respiratory centre of the brain is stimulated by
 a) CO₂ content in venous the blood
 b) CO₂ content in arterial the blood
 c) O₂ content in arterial the blood
 d) O₂ content in venous the blood
12. Identify A, B and C in the given diagram and choose the correct option accordingly



- a) A-Alveolar cavity, B-WBC, C-Capillary wall
 b) A-Alveolar cavity, B-RBC, C-Systemic wall
 c) A-Alveolar cavity, B-RBC, C-Capillary wall
 d) A-Alveolar cavity, B-WBC, C-Systemic wall
13. Why breathing is accelerated when the person opens his nose after holding the breathe by closing his nose?
 a) CO₂ build up in the body
 b) CO build up in the body
 c) H⁺ decreases in the body
 d) CO₂ decrease in body
14. Listed below are four respiratory capacities (I-IV) and four jumbled respiratory volumes of a normal human adult.

Respiratory Capacity	Respiratory Volume
I. Residual volume	1.
II. Vital capacity	1.
III. Inspiratory reserve volume	1.
IV. Inspiratory capacity	4600 mL

Which one of the following is the correct matching of two capacities and volumes?

- a) II 3000 mL, III 4600 mL
 b) III 1200 mL, IV 3000 mL
 c) IV 3500 mL, I 1200 mL
 d) I 4600 mL, II 3500 mL
15. Exchange of gases in lungs occurs through
 a) Simple diffusion
 b) Active transport
 c) Osmosis
 d) Plasmolysis

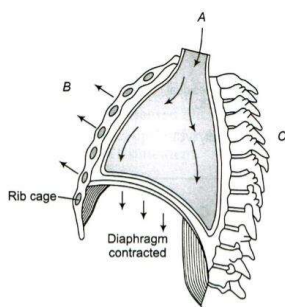
16.

Partial pressure Of Gases	Blood (De oxy genated)	Blood (Oxyge nated)	Tissues
O ₂	40	B	40
CO ₂	A	40	C

Choose the correct option for A, B and C to complete the given data

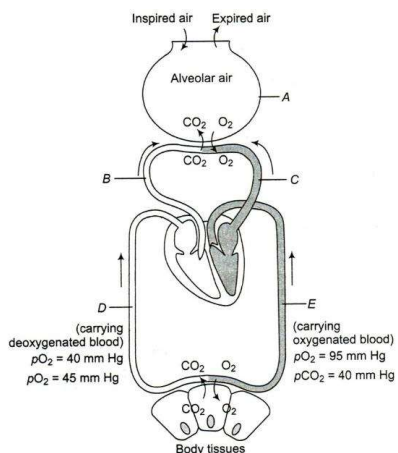
- a) A-40, B-95, C-40
 b) A-45, B-95, C-45
 c) A-35, B-95, C-45
 d) A-35, B-95, C-95
17. Floating ribs of thoracic cage are
 a) 1st to 7th pair
 b) 8th to 9th pair
 c) 8th to 10th pair
 d) 11th to 12th pair
18. At which thoracic vertebra does trachea divide into right and left primary bronchi?
 a) 5
 b) 6
 c) 9
 d) 4
19. The partial pressure of oxygen in the alveolar air is
 a) 45 mm Hg
 b) 95 mm Hg
 c) 104 mm Hg
 d) 110 mm Hg
20. Inspiration is initiated by
 a) Extension of the diaphragm
 b) Contraction of the diaphragm

- IV. Vital capacity
 a) I < II < III < IV b) I < III < II < IV c) I < IV < III < II d) I < IV < II < III
32. Chloride shift occurs in response to
 a) HCO_3^- b) K^+ c) H^+ d) Na^+
33. Which situation would result in the greatest degree of O_2 saturation for haemoglobin, if $p\text{O}_2$ remains constant?
 a) Increased CO_2 level, decreased temperature
 b) Decreased CO_2 level, decreased temperature
 c) Increased CO_2 level, increased temperature
 d) Decreased CO_2 level, increased temperature
34. Blood does not become acidic although it carries CO_2 because
 a) CO_2 is continuously diffused through tissues b) CO_2 combines with H_2O to form H_2CO_3
 c) In CO_2 transport, buffers play an important role d) CO_2 is absorbed by WBC
35. On high mountains difficulty in breathing is due to
 a) Decrease in partial pressure of oxygen b) Decrease in amount of oxygen
 c) Increase in carbon dioxide concentration d) All of the above
36. What is Bohr's effect?
 a) Raise of $p\text{CO}_2$ or fall in pH decreases the oxygen affinity of haemoglobin
 b) Decrease of $p\text{CO}_2$ or fall in pH decreases the oxygen affinity of haemoglobin
 c) Raise of $p\text{CO}_2$ or increase in pH decreases the oxygen affinity of haemoglobin
 d) Shifting of the oxygen-haemoglobin curve to left
37. One of the major causes of emphysema is
 a) Pollution b) Smog c) Cigarette smoking d) Sanitary condition
38. Animals who use their skin as an accessory respiratory organ are
 I. lizard II. frog
 III. rabbit IV. Zebra
 Choose the correct option
 a) I and II b) Only I c) IV and II d) Only II
39. When the oxygen supply to the tissues is inadequate, the condition is
 a) Hypoxia b) Asphyxia c) Pleuracy d) Anoxia
40. The percentage of oxygen in inhaled air is about
 a) 21% b) 16% c) 79% d) 4%
41. State whether the given statements are true or false
 I. Respiration in humans is an active process
 II. Diaphragm helps in generating the pressure gradient in the lungs
 Choose the correct option
 a) I – True, II – False b) I – True, II – True c) I – False, II – True d) I – False, II – False
42. When carbon dioxide concentration in blood increases, breathing becomes
 a) Shallower and slow b) There is no effect on breathing
 c) Slow and deep d) Faster and deeper
43. I. Intra pulmonary pressure remains less than the atmospheric pressure
 II. There is negative pressure in the lungs than the atmospheric pressure
 In which of the above two situations inspiration takes place?
 Choose the correct option accordingly?
 a) Only I b) Only II c) Both I and II d) I or II
44. Under which condition, dissociation of oxygen from oxyhaemoglobin in tissues occurs?
 a) Low $p\text{O}_2$ b) High $p\text{CO}_2$ c) High H^+ d) All of these
45. In the given diagram, identify what is depicted by A, B and C
 Choose the correct option



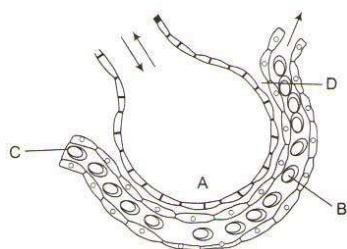
- a) A-Air going out from lungs, B-Ribs and sternum relaxed, C-Volume of thorax increased
 b) A-Air entering lungs, B-Ribs and sternum relaxed, C-Volume of thorax increased
 c) A-Air entering lungs, B-Ribs and sternum raised, C-Volume of thorax increased
 d) A-Air going out from lungs, B-Ribs and sternum relaxed, C-Volume of thorax decreased
46. Which of the following statement is false?
 a) The conducting part of the respiratory system transports the atmospheric air to alveoli
 b) Conducting part of the respiratory system clears the air from foreign particles, humidifies and brings it to the body temperature
 c) Exchange part of the respiratory system is the actual site at which O₂ and CO₂ exchange takes place
 d) None of the above
47. Lungs comprises
 a) Network of bronchi b) Bronchioles c) Alveoli d) All of these
48. Which of the following statement is incorrect about nasopharynx?
 a) Internal nostrils opens into nasopharynx
 b) It is the common passage for air only
 c) It is a portion of pharynx
 d) Nasopharynx opens through the glottis of the larynx region into the trachea
49. Pneumonia is an infection of
 a) Trachea b) Larynx c) Vocal cord d) Lungs
50. Which of the following equation is correct?
 a) $\text{KHbO}_2 + \text{H}^+ \xrightleftharpoons{\text{RBC}} \text{Hb} + \text{K} + \text{H}_2\text{O}$
 b) $\text{Hb} + \text{O}_2 \xrightleftharpoons[\text{Dissociation in lungs}]{\text{Association in tissues}} \text{HbO}_2$
 c) $\text{Na}^+ + \text{HCO}_3^- \xrightleftharpoons{\text{Erythrocyte}} \text{NaHCO}_3$
 d) $\text{HbO}_2 \xrightleftharpoons[\text{Association in lungs}]{\text{Dissociation in tissues}} \text{Hb} + \text{O}_2$
51. Site of aerobic respiration in higher organisms is/are
 a) Golgi apparatus b) Mitochondria c) Both (a) and (b) d) Lungs
52. The total thickness of the diffusion membrane of alveolus capillary is
 a) Less than 1 cm b) Less than 2 cm c) Less than 1 mm d) More than 1 mm
53. During expiration, the diaphragm becomes
 a) Dome-shaped b) Oblique c) Normal d) Flattened
54. Which fact suggests that most oxygen is transported from lungs to the tissues combined with haemoglobin rather than dissolved in blood plasma?
 a) Oxygen carrying capacity of whole blood is much higher than that of plasma and oxygen content of blood leaving the lungs is greater than that of blood entering the lungs
 b) Haemoglobin can combine with oxygen
 c) Oxyhaemoglobin can dissociate into haemoglobin and oxygen
 d) Increase in carbon dioxide concentration decreases the oxygen affinity of haemoglobin

55. A large proportion of oxygen is left unused in the human blood even after its uptake by the body tissues. This O_2
- Raises the p_{CO_2} of blood to 75 mm of Hg
 - Is enough to keep oxyhaemoglobin
 - Helps in releasing more O_2 to the epithelial tissues
 - Acts as a reserve during muscular exercises
56. Which of the following statement is true regarding the human respiratory system?
- Tracheal rings are of hyaline cartilage
 - Dorsal side of the thoracic chamber is formed by sternum
 - Expiration occurs when there is negative pressure in the lungs
 - Inspiration occurs when there is positive pressure in the lungs
57. When the nutrients are oxidised without using molecular O_2 called ...A... in yeast glucose formed ...B... and CO_2 . Endoparasite also respire ...C.... It gives low energy. Choose the correct option for A, B and C
- A-fermentation, R-ethyl alcohol, C-anaerobically
 - A-fermentation, B-methyl alcohol, C-anaerobically
 - A-fermentation, B-alcohol, C-aerobically
 - A-fermentation, B-ethyl alcohol, C-aerobically
58. The ventilation movements of the lungs in mammals is governed by
- Diaphragm
 - Coastal muscles
 - Both (a) and (b)
 - None of these
59. CO_2 diffuses into ...A... and forms HCO_3^- and H^+ . At the ...B... site where p_{CO_2} is low, the reaction proceeds in the opposite direction. Thus, CO_2 is trapped as ...C... at the tissue level and transported to alveoli is released out as ...D... Select the right choice for A, B, C and D to complete the given NCERT statement
- A-WBC, B-diffusion, C-carbonate, D- O_2
 - A-RBC, B-alveolar, C-bicarbonate, D- CO_2
 - A-RBC, B-alveolar, C-bicarbonate, D- O_2
 - A-RBC, B-alveolar, C-carbonate, D- CO_2
60. Lungs have a large number of narrow tubes called
- Alveoli
 - Bronchi
 - Bronchioles
 - Tracheae
61. Conducting part of the respiratory system comprises
- External nostrils upto the terminal bronchioles
 - Internal nostrils upto trachea
 - Epiglottis upto trachea
 - Larynx upto bronchi
62. Arrange the given steps of respiration mechanism in the order, they occur in the human body
- Breathing or pulmonary ventilation
 - Diffusion across the alveolar membrane
 - Transport of gases by blood
 - Utilisation of O_2 by cells
 - Diffusion of O_2 and CO_2 between blood and tissues
- Choose the correct option
- I → II → III → IV → V
 - I → II → III → V → IV
 - I → III → II → V → IV
 - I → III → II → IV → V
63. How many layers are present in the diffusion membrane of alveolus capillary?
- 5
 - 3
 - 2
 - 4
64. Blood analysis of a patient reveals an unusually high quantity of carboxyhaemoglobin content. Which of the following conclusions is most likely to be correct?
- Carbon disulphide the patient has been inhaling polluted air containing usually high content of
 - Chloroform the patient has been inhaling polluted air containing usually high content of
 - Carbon dioxide the patient has been inhaling polluted air containing usually high content of
 - Carbon monoxide the patient has been inhaling polluted air containing usually high content of
65. What happens in Hamburger shift?
- HCO_3^- ions move out from plasma and Cl^- ions enters into RBC
 - CO_3^- ions move out from plasma and Cl^- ions enters into RBC



- 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
76. A chemosensitive area is situated adjacent to the rhythm centre in the brain. This area is highly sensitive to
 a) CO₂ concentration b) O₂ concentration c) H⁺ concentration d) Both (a) and (c)
77. Vocal cords occur in
 a) Pharynx b) Larynx c) Glottis d) Bronchial
78. Total lung capacity is
 a) Total volume of air accommodated in lungs at the end a forced inspiration
 b) RV + ERV + TU + IRV
 c) Vital capacity + residual volume
 d) All of the above
79. In the diagram given in the previous question, the function performed by A, B and C are as follows
 A - Diffusion of O₂ to blood
 B - Diffusion of CO₂
 C - Exchange of gases takes place
 Select among A, B and C which one is correctly matched and choose the correct option accordingly
 a) Only A b) Only B c) Only C d) A, B and C
80. Carbonic anhydrase is found in
 a) Blood b) Plasma c) Both (a) and (b) d) None of these
81. Process of exchange of O₂ from the atmosphere with ...A... produced by the cells is called ...B..., which is commonly known as ...C...
 Choose the appropriate options for the blanks A, B and C to complete the given NCERT statement
 a) A-H₂O, B-breathing, C-respiration b) A-O₂, B-breathing, C-respiration
 c) A-CO₂, B-breathing, C-respiration d) A-NO₂, B-breathing, C-respiration
82. The breathing centre initiates the ventilation in response to
 a) Increase of air pressure b) Decrease of air pressure
 c) Increase of CO₂ in arterial blood d) Increase of O₂ in arterial blood
83. Exchange of O₂ and CO₂ between the blood and tissue is based on
 a) Pressure/concentration gradient b) Inspiratory capacity
 c) Osmotic gradient d) Tidal volume
84. What are the favourable conditions for oxyhaemoglobin?
 a) High ρO_2 b) Low ρCO_2 c) Low H⁺ d) All of these
85. When a sea diver goes very deep he has to breathe on compressed air at high pressure. After sometime, he loses his strength to work and feel drowsy. This is because of
 a) Compressed air b) More carbon dioxide diffusing into molecules

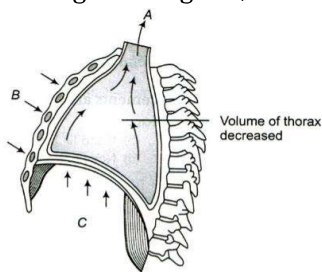
- c) More nitrogen diffusing in blood and body fats d) Nervous system does not work properly
86. Which is called Hamburger shift?
 a) Hydrogen shift b) Bicarbonate shift c) Chloride shift d) Sodium shift
87. Hiccups can be best described as
 a) Forceful sudden expiration b) Jerky incomplete inspiration
 c) Vibration of the soft palate during breathing d) Sign of indigestion
88. Dead space air in man is
 a) 500 mL b) 150 mL c) 250 mL d) 1.5 mL
89. Human beings have a significant ability to maintain and moderate the respiratory rhythm to suit the demands of the body tissues. This is achieved by
 a) Arterial system b) Systemic vein system
 c) Neural system d) Cardiac system
90. The expiratory reserve volume will be
 a) 1000 mL b) 2000 mL c) 4000 mL d) 5000 mL
91. Why does the air in the nasal cavity get warmed?
 a) Because of the presence of many hairs present in nasal cavity
 b) Because the nasal cavity has very good blood supply
 c) Because the nasal cavity has mucous membrane
 d) All of the above
92. Haemoglobin (Hb) is a
 a) Reproductive pigment b) Respiratory pigment
 c) Carbohydrate d) Fat
93. The figure given below shows a small part of human lung where exchange of gas 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) A – Alveolar cavity - main site of exchange of respiratory gases
 b) D – Capillary wall - exchange of gases takes place here
 c) B - Red blood cell - transport of mainly haemoglobin
 d) C - Arterial capillary – passes oxygen to tissues
94. How many molecules of oxygen can bind to a molecule of haemoglobin?
 a) One b) Two c) Three d) Four
95. 'XX' is a part of respiratory system that contains C-shaped rings of hyaline cartilage. 'XX' is lined with ciliated, pseudostratified columnar epithelium. Identify 'XX'
 a) Nasopharynx b) Glottis c) Larynx d) Trachea
96. The oxygen toxicity is related with
 a) Blood poisoning b) Collapsing of alveolar walls
 c) Failure of ventilation of lungs d) Both (a) and (b)
97. Arrange the given steps by which the pulmonary volume increases in the sequence of events occurring first
 I. Contraction of intercostal muscles
 II. Lifting up of the ribs
 III. Sternum causing an increase in the volume of the thoracic chamber in dorsoventral axis
 IV. Contraction of the diaphragm which increases the volume of the thoracic chamber in antero-posterior axis
 Choose the correct option

- a) I → II → III → IV b) IV → I → II → III c) IV → I → III → II d) I → III → IV → II
98. Almost same $p\text{CO}_2$ in humans is found in
 a) Oxygenated blood and tissues b) Deoxygenated blood and oxygenated blood
 c) Deoxygenated blood and tissues d) All of the above
99. During swallowing, glottis can be covered by a thin elastic cartilaginous flap called ...A... to prevent the entry of food into larynx. Trachea is a straight tube extending up to ...B... cavity, which divides at the level of 5th thoracic vertebra into right and left primary ...C...
 Choose the correct option for A, B and C from the given four options to complete the above statement with reference to NCERT textbook
 a) A-epiglottis, B-bronchi, C-bronchioles
 b) A-epiglottis, B-mid thoracic, C-bronchi
 c) A-epiglottis, B-hind thoracic, C-bronchi
 d) A-epiglottis, B-pre thoracic, C-bronchi
100. Volume of air breathed in and out, while at rest is called
 a) Residual volume b) Tidal volume c) Vital volume d) Total lung capacity
101. Residual volume is
 a) Lesser than tidal volume b) Greater than inspiratory volume
 c) Greater than vital capacity d) Greater than tidal volume
102. Which part of the brain is called respiratory rhythm centre?
 a) Cerebellum region b) Brain stem region c) Medulla region d) Temporal region
103. Tidal volume is
 a) Volume of air inspired or expired
 b) Additional volume of air, a person can inspire by a forcible inspiration
 c) Additional volume of air, a person can expire by a forcible expiration
 d) Remaining volume of air in the lungs even after a forcible expiration
104. Identify which respiratory structure possesses the following features and choose the correct option accordingly
 I. Found in mammals
 II. Highly muscular and fibrous partition, elevated towards the thorax like a dome
 III. Separates thoracic and abdominal cavity
 a) Pleural membrane b) Phrenic muscle c) Diaphragm d) Mediastinum
105. Haemoglobin is having maximum affinity with
 a) Carbon dioxide b) Carbon monoxide c) Oxygen d) Ammonia
106. Arrange the given steps of expiration in the sequence of event occurring first
 I. Relaxation of the diaphragm and sternum
 II. Reduction of the pulmonary volume
 III. Expulsion of air from the lungs
 IV. Increase in intra pulmonary pressure
 Choose the correct option
 a) I → II → III → IV b) I → II → IV → III c) IV → III → II → I d) IV → II → III → I
107. Factors affecting the rate of diffusion is/are
 a) Pressure gradient b) Solubility of gases
 c) Thickness of membranes d) All of these
108. Which one of the following is the correct statement regarding the process of respiration in humans?
 a) Cigarette smoking may lead to inflammation of nasopharynx
 b) Neural signals from the pneumotoxic centre in the pons region of the brain can't increase the duration of inspiration
 c) Workers in grinding and stone breaking industries may suffer from lung fibrosis
 d) About 90% of CO_2 is carried out by haemoglobin as carbaminohaemoglobin

109. Identify the component of respiratory system which displays the features given below and choose the correct option
 I. Double layered
 II. Fluid contained in it reduces the friction on the lung surface
 III. Its outer layer is in contact with thoracic wall
 IV. Its inner layer is in contact with lungs
 a) Visceral layer b) Peritoneum cavity c) Visceral organs d) Pleura
110. I. On an average a healthy human breathes 12-16 times/minute
 II. The volume of air involved in the breathing movements can be estimated by spirometer
 III. Diaphragm is very useful in both inspiration and expiration
 Which of the above statements are incorrect?
 Choose the correct option
 a) I and II b) II and III c) I and III d) None of these
111. Blood is a medium to transport O_2 and CO_2 . About ...A... per cent of O_2 is transported by ...B... in the blood and the remaining ...C... per cent of O_2 is carried in a dissolved state through the ...D...
 Select the right options for A, B, C and D to complete the given statement
 a) A-50, B-RBC, C-50, D-plasma b) A-97, B-RBC, C-3, D-plasma
 c) A-90, B-RBC, C-10, D-plasma d) A-80, B-RBC, C-20, D-plasma
112. Name the artery which carries deoxygenated blood
 a) Pulmonary artery b) Pulmonary trunk c) Systemic artery d) Vena cava
113. Receptors associated with the aortic arch and carotid artery can recognize the changes in ...A... and H^+ concentration and send necessary signals to the ...B... for remedial actions
 Select the right choice for A and B to complete the given NCERT statement
 a) A- OH^- ; B-rhythm centre b) A- O_2 ; B-rhythm centre
 c) A- CO_2 ; B-rhythm centre d) A-blood circulation; B-rhythm
114. The factor which does not affect the rate of alveolar diffusion is
 a) Solubility of gases b) Thickness of the membranes
 c) Pressure gradient d) Reactivity of the gases
115. How much amount of air can be inspired or expired during normal breathing?
 a) 0.5L b) 2.5L c) 1.5L d) 5.5L
116. The partial pressure of CO_2 (pCO_2) is the highest in
 a) Trachea b) Alveoli c) Tissues d) Bronchi
117. Dissociation of CO_2 from carbamino haemoglobin takes place when
 a) pCO_2 is less in alveoli and pO_2 is high b) pCO_2 is low and pO_2 is high in alveoli
 c) pCO_2 is equal to pO_2 in lungs, *i.e.*, low d) pCO_2 is equal to pO_2 in tissue, *i.e.*, high
118. Pneumotaxic centre of the brain can
 a) Moderate the function of respiratory system b) Decrease the heart rate
 c) Increase the heart rate d) Increase the flow of blood
119. In the given diagram, what A, B and C depicts?



- a) A-Air goes inside to lungs, B-Ribs and sternum returned to original, position, C-Diaphragm contracted
 b) A-Air expelled from lungs, B-Ribs and sternum returned to original position, C-Diaphragm relaxed and arched upward
 c) A-Air expelled from lungs, B-Ribs and sternum goes upward, C-Diaphragm relaxed and arched upward

d) A-Air goes inside to lungs, B-Ribs and sternum goes upward, C-Diaphragm relaxed and arched upward

120. Effect of 2-3 DPG on the human blood is that

- a) It increases the affinity of O_2 to haemoglobin b) It decreases the affinity of O_2 to haemoglobin
c) It increases in the blood in plane areas d) None of the above

121. 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) Diaphragm b) Neck c) Tongue d) Epiglottis

122. The thoracic chamber is formed dorsally by the ...A..., ventrally by the ...B..., laterally by the ...C... and on lower side by the dome-shaped ...D...

Select the right choices for A, B, C and D to complete the given NCERT statement

- a) A-vertebral column, B-sternum, C-ribs, D-diaphragm
b) A-vertebral column, B-ribs, C-sternum, D-diaphragm
c) A-diaphragm, B-ribs, C-sternum, D-vertebral column
d) A-ribs, B-diaphragm, C-sternum, D-vertebral column

123. Which structure of the lungs is directly involved in O_2/CO_2 exchange between air and blood capillary?

- a) Bronchi b) Trachea c) Alveoli d) Secondary bronchi

124. If the level of carboxyhaemoglobin in blood reaches upto....., the functioning of central nervous system is severely affected which results in death.

- a) 1 to 2% b) 0.20 to 0.30% c) 0.30 to 0.40% d) 0.1 to 5%

125. When the body is rapidly oxidizing fat, excessive ketone bodies gets accumulated in the body, resulting in the formation of

- a) Pyruvic acid b) Lactic acid c) Ketoacidosis d) ATP

126. Which portion of the human respiratory system is called sound box?

- a) Larynx b) Trachea c) Nasopharynx d) Glottis

127. Binding of O_2 with haemoglobin is primarily depended upon

- I. partial pressure of O_2
II. partial pressure of CO_2
III. hydrogen ion concentration
IV. temperature

Choose the correct option

- a) I, II and IV b) II, III and IV c) I, III and IV d) All of these

128. Disease aggravated by pollution is

- a) Haemophilia b) Rheumatism c) Scurvy d) Bronchitis

129. In humans, right lung is divided into ...A... lobes and left lung is divided into ...B... lobes.

Choose the correct option for A and B to complete the given statement

- a) A-3; B-2 b) A-2; B-3 c) A-2; B-2 d) A-3; B-4

130. Which vein contains the oxygenated blood in humans?

- a) Cardiac vein b) Hepato pancreatic vein
c) Portal vein d) Pulmonary vein

131. Rate of breathing is controlled by

- a) The amount of freely available oxygen b) Carbon dioxide
c) Muscular functions of the body d) None of the above

132. Emphysema is a chronic disorder which is caused due to

- a) Damaged trachea b) Damaged nostrils
c) Damaged alveolar walls d) Damaged lungs

133. I. pO_2 is the major factor which affects the binding of CO_2 with haemoglobin

II. pCO_2 is low and pO_2 is high in tissues

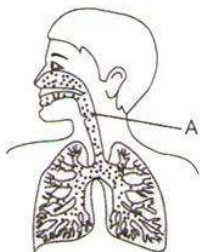
III. RBC contains a very high concentration of carbonic anhydrase

IV. Every 100 mL of deoxygenated blood delivers approximately 4 mL of CO_2 to alveoli

Select the combination of right statements

- a) I, III and IV b) I, II and IV c) I, II and III d) II, III and IV
134. Although much carbon dioxide is carried in blood, yet blood does not become acidic because
- a) CO_2 is continuously diffused through the tissues and is not allowed to accumulate
 b) CO_2 combines with water to form H_2CO_3 , which is neutralized by Na_2CO_3
 c) In CO_2 transport, blood buffers play an important role
 d) CO_2 is absorbed by leucocytes
135. Which of the following changes usually tends to occur in plain dwellers when they move to the high altitudes?
- I. Increased breathing rate
 II. Increased RBC production
 III. Increased WBC production
 IV. Increased thrombocyte count
- Choose the correct option
- a) I and II b) III and IV c) I and IV d) I and II
136. Asthama is caused by
- a) Infection in the lungs b) Infection in the trachea
 c) Infection of the glottis d) Spasm in the bronchioles and bronchi
137. Blood carries CO_2 mainly, in which form?
- a) Hb. CO_2 b) NaHCO_3 c) Carbonic acid d) Hb. CO_2 and CO
138. Movement of the air into and out of the lungs is carried out by
- a) Imbibition b) Pressure gradient c) Osmosis d) Diffusion
139. Partial pressure of O_2 and CO_2 in atmospheric airs compared to those in alveolar air is
- ρO_2 ρCO_2
- a) Higher Lower b) Higher Higher
 c) Lower Lower d) Lower Higher
140. Right lung of rabbit is divided into
- a) Four lobes b) Two lobes c) Six lobes d) Eight lobes
141. Transport of CO_2 by the blood is primarily dependent upon
- a) Solubility of CO_2 in blood b) Carbonic anhydrase
 c) Binding of haemoglobin to CO_2 d) Binding of haemoglobin to O_2
142. The alveoli of lungs are lined by
- a) Simple epithelium b) Squamous epithelium
 c) Cuboidal epithelium d) Columnar epithelium
143. A muscular transverse partition in mammals that separates thorax from abdomen is called
- a) Diaphragm b) Pharynx c) Stomach d) Duodenum
144. Carbon dioxide (CO_2) is released during
- a) Catabolic reactions b) Anabolic reactions c) Amphibolic reactions d) All of the above
145. Respiratory or exchange part of the respiratory system comprises
- a) Lungs and pleural membrane b) Alveoli and their ducts
 c) Bronchus and their protecting covering d) Diaphragm and alveoli
146. The solubility of CO_2 in the blood is
- a) 10-15 times higher than that of O_2 b) 20-25 times higher than that of O_2
 c) Slightly higher than that of O_2 d) Slightly lower than that of O_2
147. I. Increased partial pressure of O_2
 II. Increased partial pressure of CO_2
 III. Increased partial pressure of H^+
 IV. Decreased partial pressure of O_2
- All the above situations favours the dissociation of oxyhaemoglobin except
- a) I and II b) II and III c) I and IV d) Only I

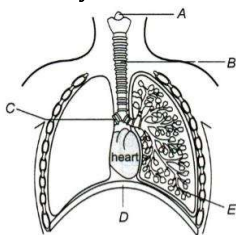
161. Haemoglobin is the red coloured iron containing pigment which is present in
 a) WBC b) RBC c) Platelets d) Tissue
162. The area of inner surface of bronchiole is
 a) 1 m² b) 10 m² c) 100 m² d) 1000 m²
163. Diffusion membrane is made up of
 a) Thin squamous epithelium of alveoli b) Endothelium of alveolar capillaries
 c) Basement substance in between the two d) All of the above mentioned above
164. Primary site of the gaseous exchange in humans is
 a) Lungs b) Alveoli c) Bronchus d) Diaphragm
165. What is the function of region labelled as 'A' in the given diagram?



- a) Passage to lungs b) Connection of larynx c) Sound producing d) Warm providing
166. Carbon dioxide is transported in blood in the form of
 a) Haemoglobin b) Oxyhaemoglobin c) Carbonate d) Bicarbonate
167. Pleural membrane is covering of
 a) Heart b) Lung c) Liver d) All of these
168. Among of CO₂ in expired air is about
 a) 0.04% b) 0.03% c) 4.5% d) 2.1%
169. Dissociation curve of haemoglobin is
 a) Sigmoid b) Parabolic c) Straight line d) Hyperbolic
170. Given below are four matchings of an animal and its kind of respiratory organ
 I. Silver fish – Trachea
 II. Scorpion – Book lung
 III. Sea squirt – Pharyngeal gills
 IV. Dolphin – Skin
 The correct matchings are
 a) II and IV b) III and IV c) I and IV d) I, II and III
171. Why carbon monoxide (CO) poisonous for man?
 a) It affects the nerves of the lungs
 b) It affects the diaphragm and intercostals muscles
 c) It reacts with oxygen reducing percentage of oxygen in air
 d) Haemoglobin combines with carbon monoxide instead of oxygen and the product cannot dissociate
172. Identify the type of pulmonary volume/capacity on the basis of quantity of air present in the lungs given below. (Refer NCERT)
 I. ~ 1100 mL – 1200 mL
 II. ~ 500 mL
 III. ~ 5000 mL – 6000 mL
 Choose the correct option
 a) I – VC, II – FRC, III – RV b) I – RV, II – TV, III – TLC
 c) I – EC, II – IC, III – RV d) I – TV, II – IRV, III – ERV
173. Approximate volume of air a healthy man can expire or inspire per minute is
 a) 5000 to 6000 mL b) 6000 to 7000 mL c) 6000 to 8000 mL d) 7000 to 9000 mL
174. Which one of the following has the smallest diameter?

- a) Right primary bronchus
 c) Trachea
- b) Left primary bronchus
 d) Respiratory bronchiole

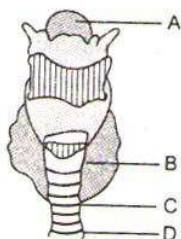
175. Identify *A, B, C, D* and *E* in the given diagram of human respiratory system



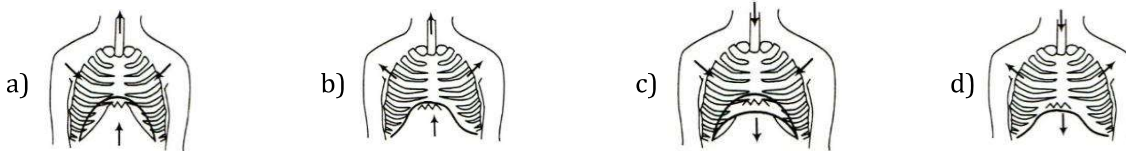
Choose the correct option

- 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
176. Identify the correct statement with reference to transport of respiratory gases by blood?
 a) Haemoglobin is necessary for transport of carbon dioxide and carbonic anhydrase for transport of oxygen
 b) Haemoglobin is necessary for transport of oxygen and carbonic anhydrase for transport of carbon dioxide
 c) Only oxygen is transported by blood
 d) Only carbon dioxide is transported by blood
177. When the body is rapidly oxidizing fats, excess ketone bodies accumulate resulting in
 a) Pyruvic acid b) Lactic acid c) Ketoacidosis d) ATP
178. Oxygen (O_2) is utilised by an organism to
 a) Directly breakdown the nutrient molecules
 b) Indirectly breakdown the nutrient molecules
 c) Obtain nourishment from the food
 d) Burn the organic compounds indirectly
179. Which of the following statements are not correct?
 I. Diffusion membrane is made up of 3 layers
 II. Solubility of CO_2 in blood is higher than O_2 by 25 times
 III. Breathing volumes are estimated by spirometer
 IV. High H^+ in blood favours oxygen dissociation
 Choose the correct option
 a) I and III b) III and IV c) I and IV d) None of these
180. After deep inspiration, capacity of maximum expiration of lung is called
 a) Total lung capacity b) Functional residual capacity
 c) Vital capacity d) Inspiratory capacity
181. After a deep inspiration and maximum expiration, the capacity of lungs is known as
 a) Vital capacity b) Tidal volume c) IRV d) ERV
182. Pick the correct statement.
 a) The contraction of internal intercostal muscles lifts up the ribs
 b) The RBCs transport oxygen only
 c) The thoracic cavity is anatomically an air tight chamber
 d) Healthy man can inspire approximately 500 mL of air per minute
183. Almost same pO_2 in humans is found in
 a) Alveoli and tissues
 b) Oxygenated blood and deoxygenated blood
 c) Alveoli and oxygenated blood
 d) Alveoli and deoxygenated blood

184. Tobacco smoke contains carbon monoxide, which
- Reduces the oxygen-carrying capacity of blood
 - Causes gastric ulcers
 - Raises blood pressure
 - Is carcinogenic
185. Which of the following diseases are occupational respiratory disorders?
- Silicosis, fibrosis and asbestosis
 - Emphysema and mountain sickness
 - Asthma and emphysema
 - Asthma and AIDS
186. In humans, exchange of gases occurs
- By diffusion
 - Between blood and tissue
 - Between alveoli and pulmonary blood capillary
 - All of the above
- 187.
- The H^+ released from carbonic acid combines with haemoglobin to form haemoglobinic acid
 - Oxyhaemoglobin of erythrocytes is alkaline
 - More than 70% of carbon dioxide is transferred from tissues to the lungs in the form of carbamino compounds
 - In a healthy person, the haemoglobin content is more than 25 gm per 100 mL
188. The diagram represents the human larynx. Choose the correct combination of labeling from the options given.



- A - larynx B - parathyroid C- tracheal cartilage D - trachea
 - A - nasolarynx B - thyroid C- tracheal cartilage D - trachea
 - A - trachea B - thyroid C - bronchiole D - tracheal cartilage
 - A - epiglottis B - thyroid C - tracheal cartilage D - trachea
189. Additional muscles in the impacts the ability of humans to increase the strength of inspiration and expiration
- Complete the given NCERT statement with an appropriate option
- Chest
 - Diaphragm
 - Abdomen
 - Lungs
190. Exhalation is the process of expulsion of air through respiratory tract. Which of the following figure does illustrate the process of exhalation?



191. Under normal conditions, what amount of O_2 is delivered by 100 mL of the oxygenated blood?
- 5 mL
 - 4 mL
 - 3 mL
 - 2 mL
192. pCO_2 is higher in tissues due to
- Anabolism
 - Catabolism
 - Building up of carbohydrates
 - Building up of proteins
193. During inspiration, the diaphragm
- Expands
 - Shows no change
 - Contracts and flattens
 - Relaxes to become dome-shaped
194. During expiration, the diaphragm becomes
- Normal
 - Flattened
 - Dome-shaped
 - Oblique
195. Severe Acute Respiratory Syndrome (SARS)

IV. cellular respiration

Choose the correct combination of options for the given statements

- a) I, II and III b) II, III and IV c) I, III and IV d) All of the above
207. CO₂ is carried by haemoglobin is
a) Carboxy haemoglobin b) Carbamino haemoglobin
c) Carbamido haemoglobin d) Deoxyhaemoglobin
208. Partial pressure of the gas is the pressure contributed by
a) All gases in a mixture b) Individual gas in a mixture
c) Pressure exerted by atmosphere on gases d) Atmosphere on O₂ only
209. Which of the following structure is present inside the larynx of the respiratory system?
a) Glottis b) Epiglottis c) Vocal cords d) None of these
210. Which of the following respiratory organs are present in spiders and scorpions?
a) Book lungs b) Gills c) Gill books d) Lungs
211. Nasopharynx opens through the ...A... of the larynx region into the ...B...
Choose the correct option for A and B to complete the given NCERT statement
a) A-trachea, B-lungs b) A-trachea, B-glottis c) A-glottis, B-lungs d) A-glottis, B-trachea
212. When temperature decreases oxyhaemoglobin curve will become
a) More steep b) Straight c) Parabola d) All of these
213. Skin is an accessory organ of respiration in
a) Human b) Frog c) Rabbit d) Lizard

