BIOLOGY

BOOKS - TRUEMAN'S BIOLOGY (ENGLISH)

BREATHING AND EXCHANGE OF GASES

Multiple Choice Questions

1. If the thoracic wall but not lungs is punctured

A. the lungs get inflated

B. the man dies as the lungs get collapsed

C. the breathing rate decreases

D. the breathing rate increases

Answer: B

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2. Inflammation of the lung covering causing severe chest pain is

A. (a) emphysema

B. (b) pleurisy

C. (c) asphyxia

D. (d) hypoxia

Answer: B

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3. In human beings, the number of lobes in right and left lungs are

A. 2 and 3

B. 2 and 2

C. 3 and 2

D. 4 and 2

Answer: C

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4. What would happen if human blood be comes acidic (low pH)?

A. binding oxygen with haemoglobin increases

B. red blood corpuscles are fomed in higher number

C. binding of oxygen with haemoglobin decreases

D. there is no change in oxygen binding nor number of RBC

Answer: C

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5. Residual air mostly occurs inÂ

A. alveloi

B. brounchus

C. norstrils

D. trachea

Answer: A

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6. What is usually present at the time of asphyxiation ?

A. (a) oxyhemoglobin

B. (b) methemoglobin

C. carbaminohemoglobin

D. (d) carboxyhemoglobin

Answer: C

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7. Trachea is lined with incomplete rings of

A. (a) fibrous cartilage

B. (b) calcified cartilage

C. (c) elastic cartilage

D. (d) hyaline cartilage

Answer: D

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

A. 20 ml

B. 1.340 ml

C. 13.4 ml

D. none of the above

Answer: B

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9. Total oxygen that can be carried by blood is

A. 1000-1200 ml

B. 2000-3000 ml

C. 200 ml

D. 100 ml

Answer: A

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10. Oxygen carried by blood is liberated in

A. arteries

B. capillars of body

C. capillaries of lungs

D. heart

Answer: B

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11. The respiratory centre in the brain is stimulated by

A. carbon dioxide content in venous blood

B. carbon dioxide content in artierial blood

C. oxygen content in venous blood

D. oxygen content in artierial blood

Answer: B

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12. Gases diffuse over the respiratory surface because of PO_2

A. is more in alveoli thatn in blood

B. is more in blood than in tissues

C. is less in alveoli than in blood

D. is less in blood than in tissues

Answer: C

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13. Dead space is

A. respiratory tract

B. nasal chambers only

C. alveolar space

D. pleural cavity

Answer: A

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

A. influx of CI into RBC

B. Efflusx of CI form plasma

C. Influx of HCO_3 ions I RBC

D. Efflux of HCO_3 ions from RBC

Answer: C

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15. Which of the following statements are true/false

A.The blood transports CO_2 comparatively

easily because of its higher solubility

B.Approximately 8.9% of CO_2 is transported being dissovled in the plasma of blood

C. The carbon dioxide produced by the tissues, diffuses passively into the blood stream and passes into red blood corpsucles and react with water to form H_2CO_3

D.The chlorde ions diffuse from palsma into the erythrocytes to maintain ionic balance

A. (i) , (iii) and (v) are ture (ii) and (iv) are false

B. (i) , (iii) adnd (v)are false (ii) and (iv) are true

C. (i), (ii) and (iv) ar ture (iii) and (v) are false

D. (i) ,(ii) and (iv) are false (iii) and (v) are ture

Answer: A

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16. Which is true ?

A. PO_2 of deoxygenated blood is 95 mm hg

B. Pco_2 of alveolar air is 40 mm Hg

C. Pco_2 of oxygenated blood is 95 mm Hg

D. Pco_2 of deoxygneated blood is 40 mm Hg

Answer: B

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17. With decrease in temperature, oxyhaemoglobin curve will become

A. straight

B. more steep

C. parabola n

D. none of these

Answer: B

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18. Which is true?

A. H^+ ions released from carbonic acid combine with haemoglobin to form haemoglobinic acid

B. oxyhaemoglobin of erythrocytes is alkaline

C. more than 70% of carbon diodxide is trnsferred form tissue to lungs as carbamino compounds

D. in healthy person haemglobin cont ent is more thant $25\frac{g}{100}$ ml

Answer: A

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19. Which is the correct sequence of air passage during inhalation ?

A. nasal caity $\rightarrow$ pharynx $\rightarrow$ trachea $\rightarrow$ larynx $\rightarrow$ bronchi $\rightarrow$ bronchioles

$\rightarrow$ alveoli

B. nasal cavity $\rightarrow$ pharynx $\rightarrow$ larynx $\rightarrow$ trachea $\rightarrow$ bronchi $\rightarrow$ bronchiloes $\rightarrow$ alveoli

C. nasal vacity $\rightarrow$ larynx $\rightarrow$ pharynx $\rightarrow$ trachea $\rightarrow$ bronchi $\rightarrow$ bornchiloes $\rightarrow$ alveoli

D. nasal vacity $\rightarrow$ larynx $\rightarrow$ bronchi $\rightarrow$ pharynx $\rightarrow$ trachea $\rightarrow$ bronchiloies $\rightarrow$ alveoli

Answer: B

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20. Food and air pathways are divided at

A. larynx

B. pharynx

C. stomach

D. oesophagus

Answer: B

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21. Glotties is a opening in the floor of

A. mouth

B. trachea

C. pharynx

D. diaphragm

Answer: C

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22. Thyroid cartilage and arytenoid cartialge are found in

A. throid gland

B. pharynx

C. Larynx

D. Ear pinna

Answer: C

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23. Adam's Apple represents

A. cirocid carilage

B. thyroid cartilage

C. pharynx

D. none of these

Answer: B

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24. The structrue which does not contribute to the breathing movements in mamals s

A. rib

B. larynx

C. diaphragm

D. intercoastal muscles

Answer: B

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25. In human, oblique fissure is present in

A. right lung

B. left lung

C. both lungs

D. diaphragm

Answer: C

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

A. bony rings

B. turgid pressure

C. chitinus rings

D. cartilaginous rings

Answer: D

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27. Lining of trachea is made up of

A. stratified cililated epithelium

B. pseudostratified ciliated epithelium

C. simple squamous epithelium

D. stratified cubodial epithelium

Answer: B

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28. The narrowest and most numerious tubes of lungs are termed as

A. hillum

B. alveoli

C. tracheae

D. bronchiloes

Answer: D

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29. Terminals bronchioles branch to form

A. alveoli

B. bronchioles

C. alveolar duct

D. respiratory bronchiole

Answer: D

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30. Which one of the following has the smallest diameter?

A. trachea

B. secondary bronchiole

C. respiratory bronchiole

D. left primary bronchus

Answer: C

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31. Lungs alveoli of mammals have a thin wall composed of

A. simple cuboidal epithelium

B. simple squamous epithelium

C. stratified cuboidal epithelium

D. stratified squamous epithelium

Answer: B

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32. The alveolar epithelium in the lung is

A. cilitate columnar

B. cilitated squamous

C. nonciliated squamous

D. noncillated columnar

Answer: C

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

A. an efficient system of ventilation with no residual air

B. an efficient system of ventilation with little residual air

C. inefficient system of ventilation with little of residual air

D. inefficient system of ventilation with high percentage of residual air

Answer: B

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34. Which structure are responsible for breathing process?

A. larynx and bronchi

B. tracheae and alveoli

C. ribs and intercostal muscles

D. intercostal muscles and Diaphragm

Answer: D

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35. Which of the following statements is correct ?

A. inspiration is an active process

B. inspiration is a passive process

C. expiration is an active process

D. both expiration and inspiration are passive processes

Answer: A

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36. During expiration, the diaphragm becomes

A. normal

B. oblique

C. flatttened

D. dome shapped

Answer: D

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37. During inspiration the diaphragm

A. relaxes to become dome shaped

B. contracts and flattens

C. shows no change

D. expands

Answer: B

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38. Which one of the following is called inspiratory muscle in mammals?

A. pleural muscle

B. external intercostal muscle

C. internal intercostal muscle

D. abdominal muscles

Answer: B

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39. During inspiration in mammals the sternum moves

A. forward and upward

B. backward and upward

C. forward and downward

D. backward and downward

Answer: A

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40. Which is correct ?

A. a human lung has 1000 alveoli

B. respiatory centres are not affected by CO_2

C. during inspiration the lungs act as suction pump

D. in human vital capactiy is just double the expriatory volume

Answer: C

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41. The contraction of internal intercostal muscles in man causes

A. normal expiration

B. inspiration

C. forced expiration

D. normal respriation

Answer: C

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42. During forced expiration , actively contracting muscles

A. diaphragm

B. external intercostals

C. abdominal muscles

D. all of these

Answer: C

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43. With refernce to human repiration which is correct ?

A. pulmonary ventialtion is equal to alveolar ventilation

B. alveolar ventialtion is more than pulmonary ventialtin

C. pulmonayr ventialtion is less than alveolar ventialtion

D. alveolar ventialtions is less than pulmonary ventialation

Answer: D

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44. Rate of breathing in an adult human is

A. 10-12/ min

B. 12-18 / min

C. 20-25 / min

D. 30-35 / min

Answer: B

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45. The breathing rate in a child is

A. more than in an adult man

B. less than in an adult man

C. same as in an adult man

D. none of the above

Answer: A

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46. Which of the following statements best summarises the relationship between respiratory rate and body size related to animals?

A. (a) larger the animal, higher the respiration rate

B. (b) smaller the animal, lower the respiration rate

C. (c) smaller the animals, higher the respiration rate

D. (d) size and respiratory rate are not related in any fashion

Answer: C

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47. which of the following conditions is responsible for increase in ventilation rate of lungs ?

A. (a) increase in O_2 content of inhaled air

B. (b) decrease in O_2 content of exhaled air

C. (c) increase of CO_2 content in inhaled air

D. (d) increase of CO_2 content in exhaled air

Answer: C

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

A. active transprot

B. simple diffusion

C. osmosis

D. all of these

Answer: B

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49. Volume of air breathed in and out during normal breathing is called

A. tidal volume

B. vital capacity

C. residual volume

D. inspiratiory reserve volume

Answer: A

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50. Tidal volume in human being is

A. 500 mL

B. 800 mL

C. 1000 mL

D. 1200 mL

Answer: A

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51. About 1200 mL of air is always known to remain inside the human lungs it is described as

A. functional residual capactiy

B. residual volume

C. expiratory reserve volume

D. inspiratory reserve volume

Answer: B

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52. The amount of air remaining in the air passages and alveloi at the end of quiet respiration is

A. tidal volume

B. residual volume

C. inspiratory reserve volume

D. functional residual capacity

Answer: D

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53. After deep inspiration, capacity of maximum expiration of lung is called : —

A. vital capacity

B. total lung capacity

C. inspiratory capacity

D. functional residual capacity

Answer: B

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54. Vital capacity of lungs is

A. IRV+ERV

B. IRV+ERV+TV

C. IRV+ERV+TV-RV

D. IRV+ERV+TV+RV

Answer: B

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

A. 1200 ml

B. 2400 ml

C. 4000 ml

D. 6000 ml

Answer: C

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56. After the expiration of a normal tidal volume a person breathes in as much as air possible the volume of air inspired is the

A. vital capacity

B. inspiratory capacity

C. inspiratory reserve volume

D. total lung capacity

Answer: B

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57. The maximum amount of air that our lung can normally hold is

A. (a) vital capacity

B. (b) tidal capacity

C. (c) total lung capacity

D. (d) pulmonary capacity

Answer: C

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58. The total lung capacity is represented by

A. tidal volume + vital capacity

B. tidal volume + functional residual capacity

C. vital capacity + residual volume

D. inspiratory and expiratory reserve volumes

Answer: C

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59. Arrange the following in the order of increasing volume

1) Tidal volume

2) Residual volume

3) Expiratory reserve volume

4) Vital capacity

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

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

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

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

Answer: B

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60. Match the items in column I with column II and choose the correct option

	Column I	Column II
A	Tidal volume	1. 2500 to 3000 mL of air
B	Inspiratory reserve volume	2 1000 mL of air
C	Expiratory reserve volume	3. 500 mL of air
D	Residual volume	4. 3400 to 4800 mL of air
E	Vital capacity	5 1200 mL of air

A. a) A - 3, B - 4 , C - 1, D - 5 , E - 2

B. b) A - 3, B - 1 , C - 2, D - 5 , E - 4

C. c) A - 4, B - 1 , C - 5, D - 2 , E - 3

D. d) A - 5, B - 4 , C - 1, D - 3, E - 2

Answer: D

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61. Given these lung volumes

A. 3500 mL

B. 2000 mL

C. 6000 mL

D. 3000 mL

Answer: B

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62. The alveolar ventilation is the

A. (a) amount of air available for gas exchange in the lungs

B. (b) vital capacity divided by the respiratory rate

C. (c) tidal volume times the respiratory rate

D. (d) minute ventilation plus the dead space

Answer: A

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63. the partial pressure of oxygen in the alveolar air is

A. 104 mmHg

B. 120 mmHg

C. 40 mmHg

D. 90 mmHg

Answer: A

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64. Which of these statements about the partial pressure of CO_2 is true ?

A. more in inspired air than in expired air

B. more in alveolar air than in expired air

C. more in expired air than in alveolar air

D. more in inspired air than in alveolar air

Answer: B

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65. How the transport of O_2 and CO_2 by blood happens?

A. (a) with the help of RBC and WBC

B. (b) with the help of WBC and blood serum

C. (c) with the help of platelets and plasma

D. (d) with the help of RBC the blood plasma

Answer: D

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66. Oxygen is transproted in blood mainly by

A. leucocytes

B. erthrocytes

C. serum

D. blood plasma

Answer: B

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67. Which form of iron is found in haemoglobin ?

A. fe^{2+}

B. fe^{3+}

C. in the form of molecule

D. in the form of feO

Answer: A

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68. The chemical formula of oxyhaemoglobin is

A. $Hb(O_2)_4$

B. $Hb(O_3)_4$

C. Hb_2O_2

D. $Hb(O_2)_6$

Answer: A

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69. how many molecules of oxygen are bound to one molecule of haemoglobin

A. one

B. two

C. three

D. four

Answer: D

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70. The most important physioloical feature of haemoglobin is

A. its red colour

B. presence of iron

C. presence of basic protein globi

D. its ability to combine reversibly with oxygen

Answer: D

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71. Percentage of oxygen supplied by haemoglobin is

A. 0.03

B. 0.7

C. 0.97

D. 1

Answer: C

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72. The percentage of haemoglobin saturated with oxygen will increase if the

A. arterial pH is decreased

B. temperature is increased

C. arterial P_2 is incrased

D. CO_2 concentration is increased

Answer: C

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73. Which of he following increases the oxygen affinity of Hb?

A. decrease in pH

B. decrease in acidity

C. decrease in temperatuere

D. decrease in co_2 concentration

Answer: B

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74. In which conditon oxygen dissociation curve of haemoglobin shift to right of normal curve ?

A. decrease in pH

B. decrease in acidity

C. decrease in temperature

D. decrese in co_2 concentration

Answer: A

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75. Dissociation of oxyhaemoglobin can be promoted by

A. low

B. high p_{CO_2}

C. high blood pH

D. low body temperature

Answer: B

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

A. WBC count increases

B. RBC count decreases

C. oxygen carrying capacity of haemoglobin increases

D. oxygen carrying capacity of haemoglobin decreases

Answer: D

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77. When parital pressure of $CO_2(pCO_2)$ rises the oxygen dissociation curve of haemoglobin will

A. shift towards left

B. become irregualr

C. remain unchanged

D. shift towards right

Answer: D

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78. An increases in the P_{50} of an oxyhaemoglobin curve would result from a decrease in

A. pH

B. carbondioxide

C. metabolism

D. temperature

Answer: A

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79. Bohr effect is the effect of

A. CO_2 on RBCs

B. O_2 on the hemoglobin

C. CO_2 on haemoglobin

D. CO_2 on oxygaemglobin

Answer: D

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80. Which of the following statement correctly defines "Bohr effects"

A. (a) rise in P_{CO2} with a decrease in pH

B. (b) rise in P_{CO2} with a decrease in CO_2 concentration

C. (c) rise in P_{CO2} with an increase in CO_2 concentration

D. (d) rise in P_{CO2} with an increase in P_{CO_2} and decrease in P_{O_2}

Answer: C

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81. Which o fthe following factors raise the P_{50} value and shifts the HbO_2 dissociaton curve to right ?

A. 1 and 2 are correct

B. 2 and 4 are correct

C. 1 and 3 are correct

D. 1,2 and 3 are correct

Answer: C

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82. CO_2 is carried in blood as

A. sodium bicarbonate

B. sodium carbonate

C. potassium carboate

D. magnesium carbonate

Answer: A

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83. Bicarbonate ions are genergated in

A. RBCs

B. basphil

C. neutrophil

D. lymphocytes

Answer: A

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84. Carbon dioxide is transproted from tissues to respirtatory surface by only

A. plasma only

B. RBCs and WBCs

C. plasma and RBCs

D. Red blood corpuscles only

Answer: C

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85. Enzyme involved in CO_2 transport in blood is

A. carboxylase

B. carboxykinase

C. carbonic anhydrase

D. none of these

Answer: C

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86. Statements

(A) Carbonic anhydrase is present in the erythrocytes
(B) In erythrocytes the carbon dioxide combine with water and is transported

A. statement (a) s correct and is responsible for sttement (b)

B. statement (a) is not correct but statement (b) is correct

C. both statements (a) and (b) are wrong

D. statement (a) is correct but not ivolved in statement (b)

Answer: A

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

A. influx of CI^- ions into RBC

B. efflux of CI^- ions from RBC

C. influx of Na^+ ions into RBC

D. efflux of ions from RBC

Answer: B

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88. Hamburger phenomenon explains

A. chloride shift

B. formation of HCO_3

C. breathing mechanism

D. oxygen saturation of hb

Answer: A

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89. Chloride shift occurs in respond to

A. H^+

B. K^+

C. Na^+

D. HCO_3

Answer: D

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

A. osmosis

B. adsorption

C. absorption

D. chloride shift

Answer: D

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91. As the P_{CO_2} of the venous blood increases the

A. blood pH decreases

B. concentration of HCO_3 decrease

C. amount of chloride in the rbcs decrease

D. affinity of the haemoglobin for O_2 increases

Answer: A

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92. Which of these statements about the partial pressure of CO_2 is true ?

A. it is higher in the alveoli than in pulmonary arteries

B. it is higher in the systemic arteries than in the tissues

C. it is higher in the systemic veins than in the systemic arteries

D. it is higher in the pulmonary veins than in pulmonary arteries

Answer: C

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93. Haemoglobin is having maximum affinity with

A. NH_3

B. O_{23}

C. CO

D. CO_2

Answer: C

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94. When a man inhales air containing normal concentration of O_2 as well as CO he suffers from suffocation because

A. Haemoglobin combines with co instead of with O_2 and product cannot dissociate

B. co reacts with O_2 reducing percentage of O_2 in the blood

C. CO affecrts the diapharagma and intercostal muscles

D. CO affects the nerve of the lungs

Answer: A

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95. Carbon monoxide has greater affinity for haemoglobin as compared to oxygen :

A. 2 times

B. 20 times

C. 250 times

D. 1000 times

Answer: C

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96. Pneumotaxic centre which can moderate the functions of the respiratory rhythm centre is present at

A. thalamus

B. spinal cord

C. pons varolii

D. left cerebral hemisphere

Answer: C

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97. The inspiratory and expiratory centres in man are located in

A. (a) pons

B. (b) cerebellum

C. (c) medulla oblongata

D. (d) one in pons and the other in cerebellum

Answer: C

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98. The Drosal Respiratory group (DRG) is located

A. dorsal portion of pons

B. ventral portion of pons

C. dorsal portion of medulla oblongata

D. ventral portion of medulla oblongata

Answer: C

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99. Which of these parts of the brainstem is correctly matched with its main function ?

A. ventral respiratory groups stimulate the diaphragm contraction

B. dorsal respiratory groups limit inflation of the lungs

C. pontine respiratory group switch between inspiration and expiration

D. all of the above

Answer: C

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100. The respiratory centre in meddulla may release motor impluses for faster breathing due to

A. venous blood leaving it

B. arterial blood leaving it

C. venous blood entering into it

D. arterial blood entering into it

Answer: D

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101. Respiratory centre of brain is sensitive to

A. more CO_2 concentration in blood

B. more O_2 concentration in blood

C. accumulation of blood in brain

D. all of the above

Answer: A

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102. Rate of breathing is maximally affected by

A. oxygen in trachea

B. concentration of O_2

C. concentration of CO_2

D. diaphragm expansion

Answer: C

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103. The impulse for voluntary muscles for forced breathing starts in

A. medualla

B. cerebrum

C. spinai cord

D. vagus nerve

Answer: B

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104. The number of RBCs increases if one lives at a higher altitude because

A. (a) there is less oxygen in mountains

B. (b) there is more oxygen at the mountains

C. (c) there are no germs in the air in mountain

D. (d) more heat is required to be produced in the body for keeping warm

Answer: A

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105. If a person living at sea level migrates to about 8000 feet high hill, his blood after fifteen days will mainly

A. (a) have fewer WBC

B. (b) have more plasma

C. (c) have an increase in volume of serum

D. (d) have a greater number of RBC and more hemoglobin

Answer: D

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106. When some food particle enters the windpipe instead of oesphagus it is expelled by the process of

A. (a) sneezing

B. (b) coughing

C. (c) yawning

D. (d) hiccupping

Answer: B

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107. Lack of breathing is

A. apnea

B. eupnea

C. dyspnea

D. asphyxia

Answer: A

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108. Ordinary quiet breathing is

A. apena

B. eupnea

C. dyspnea

D. asphyxia

Answer: B

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109. Asthma is a respiratory disease caused by:

A. infection of lungs

B. infection of trachea

C. spasm in bronchial muscles

D. bleeding into pleural cavity

Answer: C

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110. In which disease, due to flattening of tracheal vessels, alveoli are deprived of oxygen " " Or

Name the pulmonary disease in which alveolar surface area involved in gas exchange is drastically reduced due to damage in the alveolar walls

A. asthma

B. bronchitis

C. pneumonia

D. emphysema

Answer: A

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111. Which of the following is not true about asthma ?

A. the absic defect is chronic air way in flammation

B. the airway smooth muscle is hyperresponsive

C. it can be treated with bronchiodilator therapy

D. it is always caused by an infection

Answer: D

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112. In heavy smoker the alveoli of the lungs are enlarged and damaged which reduces the surface area of the exchange of respiratory gases this condition is called

A. asthma

B. silicosis

C. insominia

D. emphysema

Answer: D

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

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

A. a=4,b=2,c=5,d=1

B. a=2,b=4,c=1,d=3

C. a=5,b=3,c=2,d=1

D. a=3,b=1,c=5,d=4

Answer: B

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114. Hypoxia is the condition in which less oxygen becomes available to the tissure this may be due to

A. lesser oxygen in the atomosphere

B. blockage in air passage

C. less rbcs in blood

D. all of the above

Answer: D

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115. Whether a child died after birth or died before birth can be coniirmed by measuring

A. the dead space air

B. tidal volume of air

C. residual volume of air

D. the weight of the child

Answer: C

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116. About 97 % of oxygen is transported by RBC. The remaining 3 % is

A. present in peroxisomes

B. remains in lungs

C. trapped inside the mitochondria

D. dissolved in plasma and transported

Answer: D

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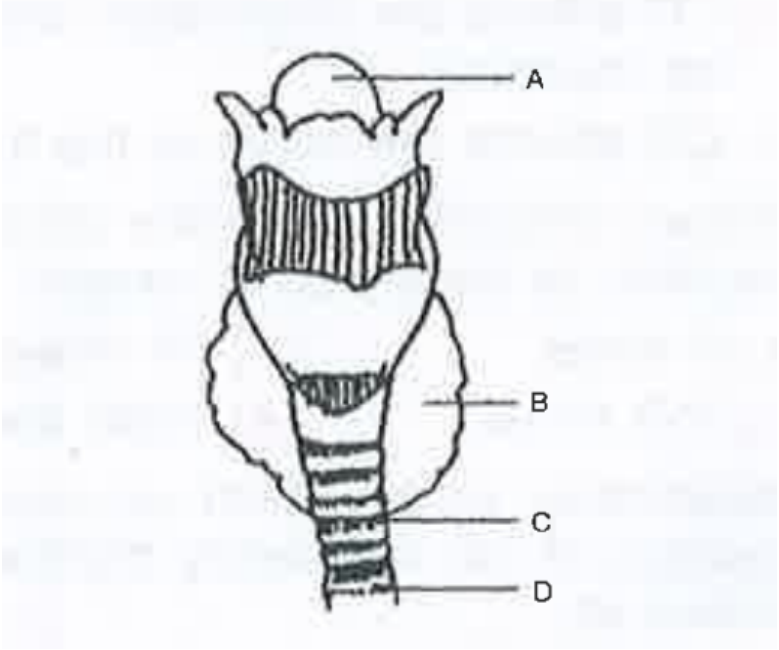
117. The diagram represents the human larynx choose the correct combination of labelling

from the option given



A. a=larynx ,b = prathyroid , c= tracheal cartilage ,d =trahea

B. a=nasolarynx ,b = thyroid ,c = tracheal cartilage , d= trachea

C. a = trachea , b =thyroid c = bronchiole, d = tracheal cartialge

D. a= epiglottis b = thyroid c = tracheal cartilage d =trachea

Answer: D

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118. Lack of pulmonary surfactant produces

A. asthma

B. emphysema

C. cystic fibrosis

D. respiratory distress syndrome

Answer: D

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119. In the resting person, saturation of hemoglobin as blood leaves the tissue capillaries is approximately

(a) 0.75

(b) 0.4

(c) 0.03

(d) 0.46

A. 0.75

B. 0.4

C. 0.03

D. 0.46

Answer: A

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120. Read the following statement and select the correct one

A. oxyhaemoglobin of erythrocytes is alkaline

B. In a healthy person the haemoglobin content is more than 25 g per 100 ml

C. In lungs the oxygen form the alveolus reaches the blood though active transport

D. The H^+ released from carbonic acid combines with haemoglobin to form haemoglobinic acid

Answer: D

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121. When the oxygne supply to the tissue is inahequaate the condition is

A. asphyxia

B. apnea

C. dyspenea

D. hypoxia

Answer: D

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122. Oxygen affinity of hemoglobin is increased by all of the following except

A. (a) alkalosis

B. (b) hypoxia

C. (c) increased Hb

D. (d) hypothermia

Answer: B

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123. All are features of exercise except

A. left shift of Hb -O_2 dissociation curve

B. increased blood supply to muscle

C. increase stroke volume

D. increase O_2 extraction

Answer: A

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124. Vital capacity, the maximum volume of air a person can inhale, is measured with

A. spirometer

B. stethoscope

C. aspirator

D. sphygmomanometer

Answer: A

Watch Video Solution

125. Go through th following statemetns carefuly

(i) The diaphragm and internal intercostal muscles are the inspiratory muscles.

(ii) The diffusion of carbon dioxide is 20 times faster than oxygen and that of oxygen is two times faster than nitrogen.

(iii) The exchange in gases between alveoli and blood capillaries is called external respiration and between blood capillaries and tissue cells is called internal respiration.

(iv) Cyanosis is caused by excessive

A. I,ii & iii

B. ii , iii & iv

C. I, ii & iv

D. iii & iv

Answer: B

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126. Go through th following statements

A. I,ii & iii

B. I,iii & iv

C. ii , iii & iv

D. all are correct

Answer: B

View Text Solution

127. Which match is incorrect

A. inspiratory t.v + irv 3500

B. vital capacity erv+irv +rv 5000

C. functional residual capacity erv + rv 2200

D. expiratory capacity tv+ erv 1500

Answer: B

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128. Read the following statement about human respiration (i) trachea divides at the level of 6th thoracic vertebra

(ii) terminal bronchioles alveoli and their ducts form the respiratory part of this system

(iii) contraction of diaphragm increases volume of thoracic chamber dorsoventrally

(iv) the internal intercostals help in inspiration

A. all except (iv) are true

B. only (iii) and (iv) are false

C. only (i) is true

D. none is true

Answer: D

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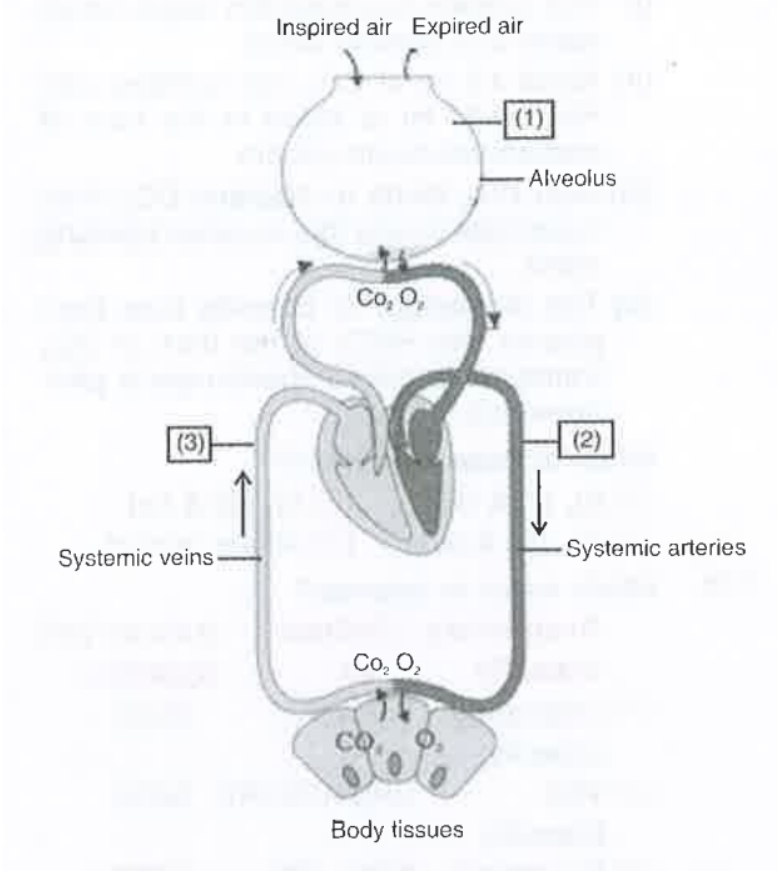
129. The following diagram shows exchange of gases between alveolus and body tissue with direct ion of flow of blood incdicated



which option correctly indicates the normal pCO_2level (in mm Hg) in 1,2 and 3 in order

A. 104,95,45

B. 40,40,45

C. 40,45,45

D. 40,40,95

Answer: B

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130. When CO_2 is exhaled out of the lungs which layers does it pass through in the correct order from inside to outside ?

A. ciliated epithelium, basement membrane, endothelium

B. endothelium, basement membrane, simple cuboidal epithelium

C. simple squamous epithelium, basement membrane, endothelium

D. endothelium, basement membrane, simple squamous epithelium

Answer: D

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131. Four possibilites for the transport of carbon dioxide from the body cells to the lungs are listed below which possibility does no exist ?

A. bound to the ferro ions of haemoglobin in erythrocytes

B. As a hydrocarbonate ion in the buffering system of the blood

C. As a hydrocarbonate ion in the buffering system of the blood

D. dissolved in blood plasma and in erythrocyte cytoplasm

Answer: A

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132. A yoga teacher is demonstrating the technique of breathing exericse during forced

expiration the actively contracting muscles in his body include

A. diaphragm

B. sternocleidomastoid

C. abdominal muscles

D. external intercostals

Answer: C

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133. Arrange the following in an ascending order of volume

1 expiratory reserve volume

2 inspiratory capacity

3 tidal volume

4 residual volume

A. $(iii) < (i) < (iv) < (ii)$

B. $(iv) < (i) < (iii) < (ii)$

C. $(iv) < (ii) < (i) < (iii)$

D. $(iii) < (iv) < (ii) < (i)$

Answer: A

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134. Increase in concentration of bicarbonate in blood plasma would result in increased

A. ventilation of lungs

B. urination

C. ultrafiltration

D. salivation

Answer: A

Watch Video Solution

135. The correct statement about respiration are

(i) In cockroach gaseous exchange occurs mainly between tracheoles and haemolymph

(ii) increase in inspiratory capacity does not involve an increase in tidal volume

(iii) partial pressure of oxygen in blood is less than that in alveoli

(iv) chloride shift in erythrocytes maintain the ionic balance

A. I and ii

B. I iii and iv

C. I ii andiv

D. ii and iii

Answer: B

 Watch Video Solution

136. Read the following statements

(i) the point of bifurcation of trachea is called carina and is at the level of 5th thoracic vertebra

(ii)the right bronchus is shorter wider and more in line with trachea than the left bronchus

(iii) the bronchioles are without cartilaginous rings

(iv) the surfactant of lungs is secreted in infants between 6th and 7th month of life

which of these are correct ?

A. I,ii & iii

B. ii , iii & iv

C. I, iii & iv

D. all are correct

Answer: A

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137. Go through the following matches

(i) functional residual capacity =erv+ irv + rv

(ii) expriatory capactiy =tv +erv ltrbgt (iii) vital

capactiy =erv + tv +irv

(iv) total lung capacity = rv+ erv + irv

which of these are correct ?

A. i.ii & iii

B. ii , iii & iv

C. I, & iii

D. ii & iii

Answer: D

Watch Video Solution

138. Go thruogh the following values

(i) residual volume -1200 ml

(ii) vital capacity -5.5 to 6.5 litres

(iii) expiratory reserve -1100ml

(iv) minut e respiratory volume -6000 to 8000 ml which of these are correct ?

A. I , ii & iii

B. ii, iii & iv

C. I , ii & iv

D. all are correct

Answer: C

Watch Video Solution

139. Go through the following statements

(i) the peripheral chemoreceptors for regulation of respiration are located in carotid veins and arch of aorta

(ii) the primary effect of pneumotaxic centre is to control the switch off point of inspiratory signal and thus limit inspiraton

(iii) the chemosensitve area for brain for

respiratory control is highly sensitive to O_2 concentration

(iv) In case of fetal haemoglobin the oxygen haemoglobin dissociation curve is shifted toward left

which of these are correct ?

(a) i, ii & iv

(b) ii and iv

(c) ii, iii & iv

(d) iii and iv

A. (a) i, ii & iv

B. (b) ii and iv

C. (c) ii, iii & iv

D. (d) iii and iv

Answer: B

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140. Go through the following statements

(i) haemoglobin is 50% satruated at arund 40-50 mmHg

(ii) maternal haemolgobin has greater afinity for O_2 as compared to fetal haemoglobin

(iii) olfactory epithelium of nose is called scheniderian membrane

(iv) the level of CO_2 has stronger effect on regulation of breathing as compard to O_2 level

which of these are correct ?

(a) i, iii & iv

(b) ii & iii

(c) i,ii & iii

(d) iii & iv

A. I , iii & iv

B. ii & iii

C. I,ii & iii

D. iii & iv

Answer: D

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141. O_2 dissociation curve is shifted to right in all except

A. hype capenea

B. rise in temperature f

C. raised 2.3 dpg level

D. metabolic alkalosis

Answer: D

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142. It is dangerous to hold breath after porlonged hyperventialtion because

A. lungs can collapse

B. CO_2 narcosis

C. due to the lack of stimulation by CO_2 anoxia can come close to dangerous levels

D. decreased CO_2 shift the oxygen dissociation curve to the light

Answer: C

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143. External respiration allows the exchange of carbon dioxide for oxygen at any altitude which of the following is not an adaptation to living high above the sea level ?

A. an increase in 2,3 bpg concentration which shifts the O_2 dissociation curve to the right

B. increased production of red blood cells by the bone marrow

C. decreased synthesis of erythropoetin by the kidney

D. hyperventilation

Answer: C

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144. Which of the following would be expected to have the greatest effect on the breathing effort ?

A. slight change in venous carbon dioxide

B. large decrease in artial oxygen

C. large increase in arterial carbon dioxide

D. no change in hydrogen ion concentration

Answer: C

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145. Which of the following statement correctly describes the respiratory tract ?

I the right lung is larger than the left

II expiration is predominantly a passive phenomenon

III air enters the lungs because of created negative pressure

A. I only

B. I and ii only

C. ii and ii only

D. i ii and iii

Answer: D

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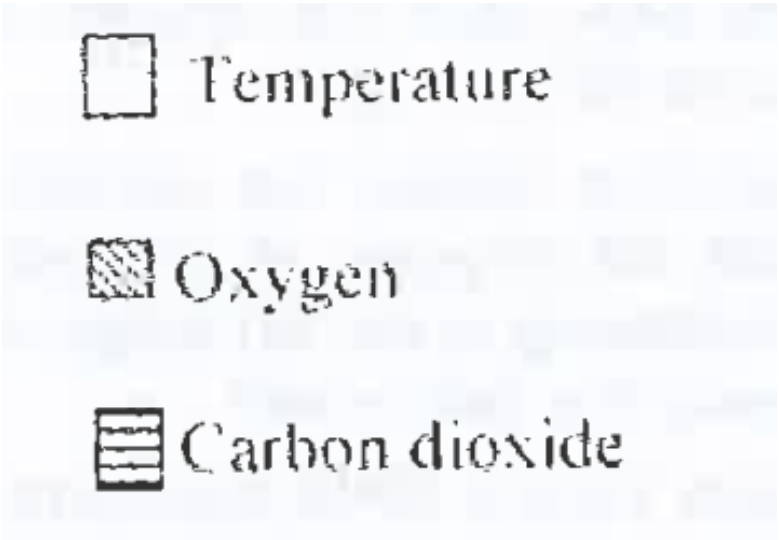
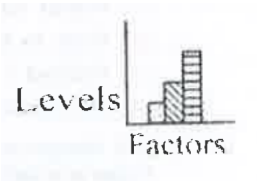
146. Choose the combination of condition in a tissue that would influence the most rapid

dissociation of oxhaemoglobin

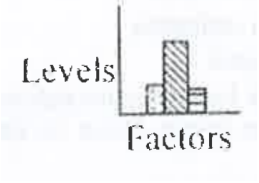


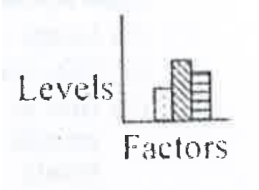
A.

B.



C.



D. 

Answer: A

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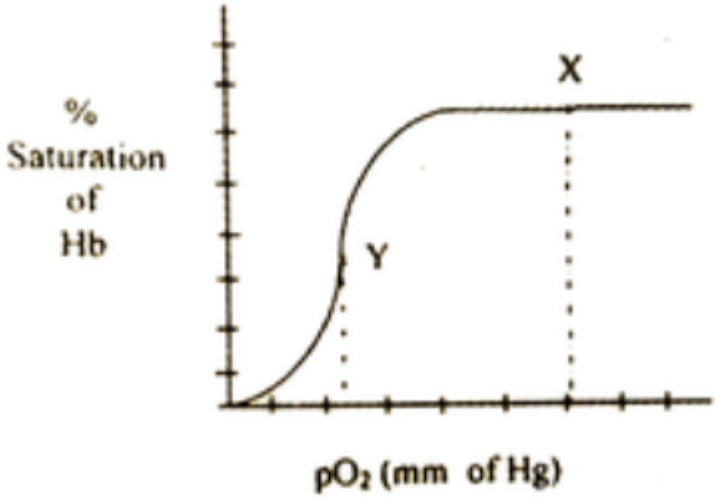
147. The accompanying graph depicts the % saturation of vertebrate haemoglobin with

oxygen what does x and y indicate ?



A. X oxygenated blood y deoxygenate blood

B. x deoxygenated blood y oxygenated blood

C. x blood of haemophilic person y blood of normal person

D. x blood of foetus y blood of adult

Answer: A

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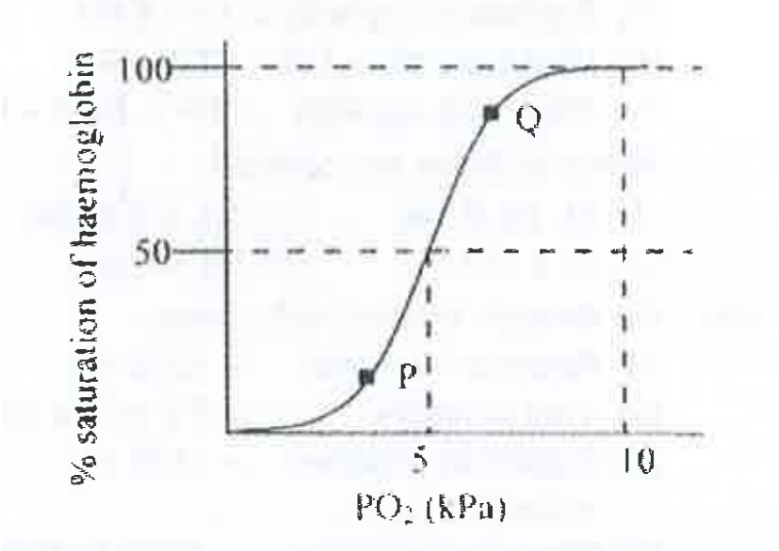
148. Oxygen saturation curve of haemoglobin molecule is show in the graph



The correct representation of haemoglobin molecule at points p and q is respectively

A. $HbCO_2$ and HbO_4

B. $HbCO$ and $HbCO_2$

C. HbO_2 and HbO_8

D. HbO_4 and HbO_6

Answer: C

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149. A person suffers punctures in his chest cavity in an accident, without any damage to the lungs its effect could be

A. Reduced breathing rate

B. Rapid increase in brathing rate

C. No change in respiration

D. Cessation of breathing

Answer: D

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150. Mark the true statement among the following with reference to normal breathing.

A. inspiration is a passive process where as expiration is active

B. inspiration is an active process where as expiration is passive

C. inspiration and expiration are active processes

D. inspiration and expriation are passive processes

Answer: B

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151. A person breathes in some volume of air by forced inspiration after having a forced expiration. This quantity of air taken in is

A. total lung capacity

B. tidal volume

C. vital capacity

D. inspiratory capacity

Answer: C

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152. Respiratory process is regulated by certain specialized centres in the brain. One of

the following listed centres can reduce the inspiratory duration upon stimulation

A. medullary inspiratory centre

B. pneumotaxic centre

C. apneustic centre

D. chemosensitive centre

Answer: B

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153. CO_2 dissocated from carbamino haemoglobin when

A. pCO_2 is high & pO_2 is low

B. pO_2 is high & pCO_2 is low

C. pCO_2 and pO_2 are equal

D. none of the above

Answer: B

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154. From the following relationship between respiration volumes and capacities, mark the correct option.

(i) Inspiratory Capacity (IC) = Tidal Volume + Residual Volume

(ii) Vital Capacity (VC) = Tidal Volume (TV) + Inspiratory Reserve Volume (IRV) + Expiratory Reserve Volume (ERV)

(iii) Residual Volume (RV) = Vital Capacity (VC) - Inspiratory Reserve Volume (IRV)

(iv) Tidal Volume (TV) = Inspiratory Capacity (IC) - Inspiratory Reserve Volume (IRV)

A. I incorrect ii incorrect iii incorrect iv correct

B. I incorrect ii correct iii incorrect iv correct

C. I correct ii incorrect iii correct iv correct

D. I correct ii incorrect iii correct iv incorrect

Answer: B

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155. When CO_2 concentration in blood increases breathing becomes

A. (a) slow and deep

B. (b) faster and deeper

C. (c) shallower and slow

D. (d) there is no effect on breathing

Answer: B

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156. Blood analysis of a patient reveals an unusually high quantity of carboxyhemoglobin content. Which of the following conclusion is the most likely to be correct? The patient has been inhaling poliuted air containing unusually high content of

A. (a) carbon dioxide

B. (b) carbon monoxide

C. (c) carbon disulphide

D. (d) chloroform

Answer: B

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157. People living at sea level have around 5 million RBC per cubic millimetre of their blood whereas those living at an altitude of 5400 metres have around 8 million. This is because at high altitude.

A. people get pollution free air to breath and more oxygen is availabe

B. atmospheric O_2 level is less and hence more RBCs are needed to absorb the required amount of O_2 to survive

C. there is more uv radiation which enhances RBC production

D. people eat more nutritive food there fore more rbcs are formed

Answer: B

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158. Which one of the following statement is in correct ?

A. the residual air in lungs slightly decrease the efficiency of respiration in mammals

B. the presence of non respiratory air sacs increases the efficiency of respiration in birds

C. in insects circulating body fluids serve to distribute oxygen to tissues

D. the principle of counter current flow facilitates efficient respiration in gills of fishes

Answer: C

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159. The majority of carbon dioxide produced by our body cells is transported to the lungs -

A. dissolved in the blood

B. as bicarbonates

C. as carbonates

D. attached to hemoglobin

Answer: B

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160. what is vital capacity of our lungs

A. total lung capacity minus residual volume

B. inspiratory reserve volume plus tidal volume

C. total lung capacity minus expiratory resrerve volume

D. inspiratory reserve volume plus expiratory reserve volume plus tidal volume

Answer: A

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161. the haemoglobin of a human foetus

A. has a higher affinity for oxygen than that of an adult

B. has a lower affinity for oxygen than that of the adult

C. its affinity for oxygen is the same as that of an adult

D. has only 2 protein subunit instead of 4

Answer: A

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162. The respiratory centre in medulla is sensitive to

A. high Co_2 concentration

B. low O_2 concentration

C. high O_2 concentration

D. all of the above

Answer: A

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

Respiratory capacities	Respiratory volumes
(i) Residual volume	2500 mL
(ii) Vital capacity	3500 mL
(iii) Inspiratory reserve volume	1200 mL
(iv) Inspiratory capacity	4500 mL

A. I 4500 ml (ii) 3500 ml

B. ii 2500 ml iii 4500 ml

C. iii 1200 ml iv 2500 ml

D. iv 3500 ml I 1200 ml

Answer: D

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164. Which two of the following changes (i-iv) usually tend to occur in the plain dwellers when they move to high altitudes (3500 m or more)

(i) Increase in red blood cell size

(ii) Increase in red blood cell production

(iii) Increased breathing rate

(iv) Increase in thrombocyte count

A. (a) i and ii

B. (b) ii and iii

C. (c) iii and iv

D. (d) i and iv

Answer: B

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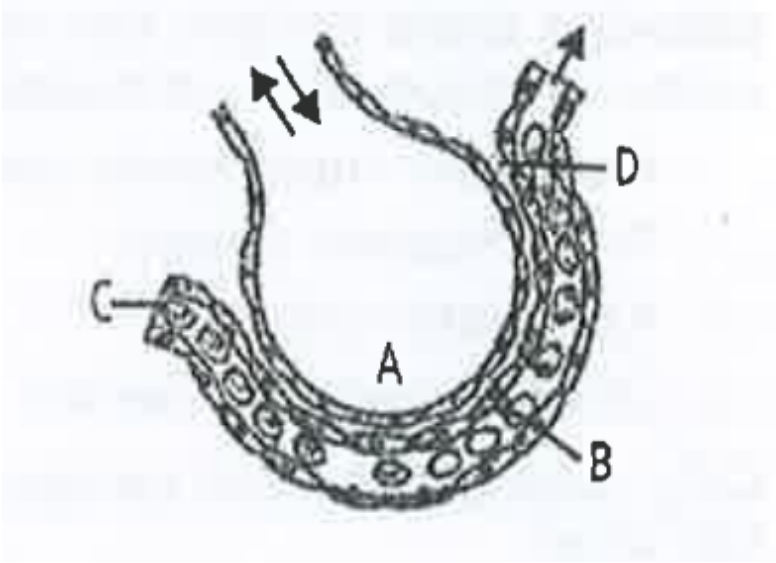
165. The figure given below shows a small part of human lung where exchange of gases takes place in which one of the options given below the one part A,B,C or D is correctly identified along with its function



A. c: arterial capillary passes oxygen to tissues

B. a : alveolar cavity main site of exchange of respiratory gases

C. d: capillary wall - exchange of O_2 and CO(2)`takes place here

D. b: red blood cell transport of co_2 mainly

Answer: B

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166. A large proportion of oxygen is left unused the human blood even after its uptake by the body tissue. This O_2

A. acts as a reserve during muscular exercise

B. raises the pco_2 of blood to 75 mm of hg

C. is enough to keep oxyhaemoglobin sat uration at 96%

D. helps in releasing more O_2 to the epithelial tissues

Answer: A

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

A. Neural signals form peneumotoxic centre in poins region of brain can increase

B. worker in grinding and stone breaking industries may suffer from lung fibrosis

C. about 90% of carbon dioxide (CO_2) is carried by haemoglobin as carbamino haemoglobin

D. cigarette smoking may lead to inflammation of bronchi

Answer: B

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168. People who have migrated from the planes to an area adjoining Rohtang pass about six months back

A. are not physically fit to play games like football

B. suffer form altitude sickness with symptoms like nausea fatigue tec

C. have the sual rvc count but their haemoglobin has very high binding affinity to O_2

D. have more rvcs and their haemoglobin has a lower binding affinity to o_2

Answer: D

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169. Which one of the following is a possibility for most of us in regards to breathing, by making a conscious effort

A. one can breathe out air totally without oxygen

B. one can breathe out air through eustachian tubes by closing both the nose and the mouth

C. one can consciulsly breathe in and breathe out by moving the diaphragm alone without moving the disphragem alone without moving the rigbs at all

D. the lungs can be made fully emplty by forcelfuly breathing out all air form them

Answer: C

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

A. bicarbonate in blood plasma and rbcs

B. free cO_2 in blood plasma

C. 70% carbamino haemoglobin and 30 % as bicarbonate

D. carbamino haemoglobin in RBCs

Answer: A

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171. Oxygen dissociation curve of haemoglobin is

A. sigmoid

B. hyperbolic

C. hypobolic

D. hypobloic

Answer: A

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172. PH of blood in arteries and veins is

A. more in veins less in arteries

B. more in artieries less in veins

C. same

D. no defineite relation

Answer: B

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173. The left lung of human is divided in to

A. one lobe

B. two lobes

C. three lobes

D. four lobes

Answer: B

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174. A major percentage (97%) of O_2 is transported by RBCs in the blood. How does the remaining percentage (3%) of O_2 transported?

A. 3 percent

B. 97 percent

C. 70 percent

D. 7 percent

Answer: B

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175. What percent (%) of CO_2 is transported as bicarbonate (HCO_3) with the help of the enzyme carbonic anhydrase?

A. 70%

B. 20-25%

C. 0.97%

D. 0.07%

Answer: B

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176. Muscles contains a red coloured oxygen storing pigment called : —

A. Haemoglobin

B. myoglobin

C. erythrocruorin

D. haemolymph

Answer: B

Watch Video Solution

177. Expiratory capacity is

A. tidal volume

B. expiratory reserve volume

C. residual volume

D. sum of tidal volume and expiratory reserve volume

Answer: D

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178. The urge to inhale in humans results from

A. rising pco_2

B. rising po_2

C. falling pcO_2

D. falling po_2

Answer: A

Watch Video Solution

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

A. bronchial carcinoma

B. bronchities

C. rhinitis

D. cyanosis

Answer: C

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180. The exchange of materials between blood and interstitial fluid is by

A. arteries

B. veins

C. capillaries

D. arterioles

Answer: C

Watch Video Solution

181. Oxygen carrying capacity of human blood is reduced due ot the pollution of

A. CO_2 on RBCs

B. CO

C. SO_2

D. O_3

Answer: B

Watch Video Solution

182. Haemoglobin value for a healthy adult male is

A. $10g/100ml$

B. $11g/100ml$

C. $12g/100ml$

D. $14-15g/100ml$

Answer: D

Watch Video Solution

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

A. (a) simple diffusion

B. (b) active transport

C. (c) osmosis

D. (d) facilitated diffusion

Answer: A

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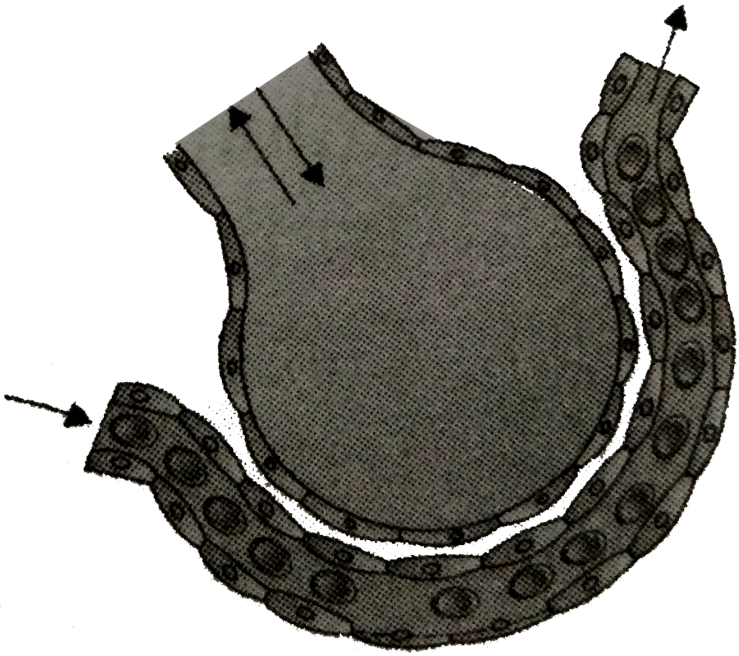
184. The factor which does not affect the rate of alveolar diffusion is



A. (a) solubility of gases

B. (b) thickness of the membranes

C. (c) pressure gradient

D. (d) reactivity of gases

Answer:

Watch Video Solution

185. Pneumotaxic centre which can moderate the functions of the respiratory rhythm centre is present at

A. pons region of brain

B. thatlamus

C. spinal cord

D. right cerebral hemsphere

Answer: A

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186. Hyproxia corresponds to

A. any change in the relative rates of development of different cell lines in body

B. hardening and loss of elasticity of arteries

C. deficiency of oxygen in body tissues

D. sudden interruption of blood flow to a portion of brain due to blockage of cerebral blood vessel

Answer: C

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187. After forceful inspiration, the amount of air that can be breathed out by maximum forced expiration is equal to

A. inspiratory reserve voume (irv) + expiratory reserve voume (erv)+ tidal volume (tv) + residual volume (rv)

B. irv+rv+erv

C. irv+tv+erv

D. tv+rv+erv

Answer: C

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188. Choose the right sequential phenomena among following during the delivery of O_2 from blood to tissue

P. Absorption of CO_2 by the blood

Q. Reaction of absorbed CO_2 with H_2O to from H_2CO_3 within RBC and its conversion into H^+ and HCO_3^- ions

R. Reaction of absorbed CO_2 with H_2O in plasma to form H_2CO_3 and its conversion into H^+ and HCO_3^-

S. Combination of H^+ with haem portion of HbO_2 to release O_2

T. Comnbination of HCO_3^- with haem portion HbO_2 to form reduced haemoglobin and release of O_2

A. p,q,t

B. p,r,s

C. p,q,s

D. p,r,t

Answer: C

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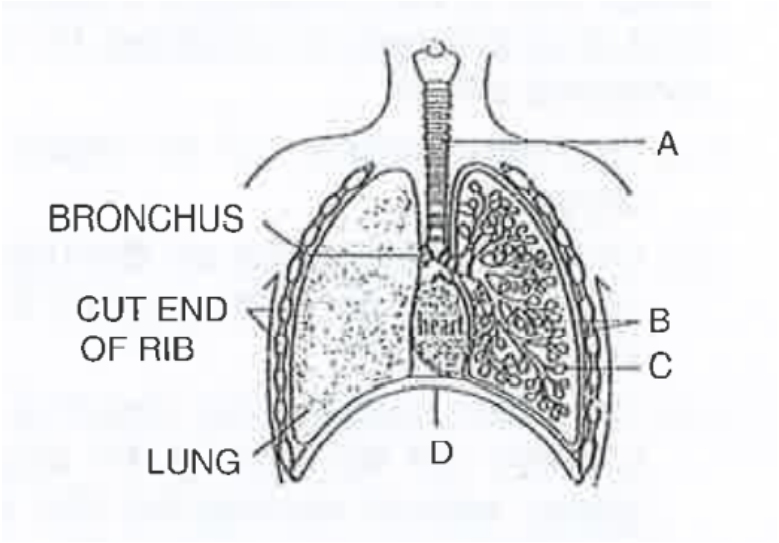
189. The figure shows a diagrammatic view of human respiratory system with labels A,B,C and D select the option which gives correct identification and main funciton and / ro characteristic



A. c alveoli thin walled vascualr bag like structures for exchanges of gases

B. d lowere end of lungs diaphragm pulls it down during inspiration

C. a tachea liong tube supported by complete cartilaginous rings for conduction inspired air

D. b pleural membrane surrounds ribes on both sides to provie cushion against rubbing

Answer: A

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

A. as carbamino haemoglobin

B. as bicarbonate ions

C. in the form of dissolved gas molecules

D. by binding to RBC

Answer: B


Watch Video Solution

191. Name the pulmonary disease in which alveolar surface area involved in gas exchange is drastically redsuced due to damage in the alveolar walls

A. pleurisy

B. emphysema

C. pneumonia

D. asthma

Answer: B

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

A. asthma

B. respiratory acidosis

C. respiratory alkalosis

D. emphysema

Answer: D

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193. Reduction in pH of blood will

A. reduce the blood supply to the brian

B. decrease the affinity of hemoglobin with oxygen

C. release bicarbonate ions by the liver

D. reduce the rate of heart beat

Answer: B

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

A. equal to that in the blood

B. more than that in the blood

C. less than that in the blood

D. less than that of carbon dioxide

Answer: B

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

A. there is a negative pressure in the lungs

B. there is a negatvie intrapleural presure lulling at the lung walls

C. there is a positive intrapleural pressure

D. pressure in the lungs is higher than the atmospheric pressure

Answer: B

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

A. residual volume

B. inspiratory reserve volume

C. tidal volume

D. expiratory reserve volume

Answer: A

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197. Which of the following is an occupational resiratory disorder

A. emphysema

B. botulism

C. silicosis

D. anthracis

Answer: C

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198. Which of the following options correctly represents the lung conditions in asthma and emphysema, respectively

A. decreased respiratory surface inflamation of bronchioles

B. increased respiratory surface inflammatoon of bronchioles

C. increased number of bronchioles in creased resiratory surface

D. inflammation of bronchiloes decreased respiratory surface

Answer: D

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199. Match the items given column I with those in column II and select the correct option given below :

Column I	Column II
(a) Tidal volume	(i) 2500–3000 mL
(b) Inspiratory Reserve volume	(ii) 1100–1200 mL
(c) Expiratory Reserve volume	(iii) 500–550 mL
(d) Residual volume	(iv) 1000–1100 mL

A. iv iii ii I

B. I iv ii iii

C. iii I iv ii

D. iii ii I iv

Answer: C

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