

India's Number 1 Education App

BIOLOGY

BOOKS - TRUEMAN BIOLOGY

BREATHING AND EXCHANGE OF GASES

Multiple Choice Questions

1. If the thoracic wall but not lungs is punctrued

- A. the lungs get inflated
- B. the man dies as the lungs get collapsed
- C. the breathing rat e decreases
- D. the breathing rate icreases

Answer: B

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2. Inflammation of the lung covering causing

severe chest pain is

A. emphysema

B. pleurisy

C. asphyxia

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



4. What would happen when blood is acidic

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 oxygne binding

nor number of RBC

Answer: C

5. Residual air mostly occurs in

A. alveloi

B. brounchus

C. norstrils

D. trachea

Answer: A

6. One common feature of the trachea of cockroach and the trachea of mammals is that

A. cilated inner lining

B. noncolasible wall

C. paired nature

D. origin from head region

Answer: B

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

A. oxyhaemoglobin

B. methaemoglobin

C. carbaminohaemoglobin

D. carboxyhaemoglobin

Answer: C

8. Trachea is lined with incomplete rings of

A. fibrous cartilage

B. calcified crtilage

C. elastic cartilage

D. hyalane caritlage

Answer: D

9. Amount of oxygen present in one gram of

haemoglobin is

A. 20 ml

B. 1.34 ml

C. 13.4 ml

D. none of the above

Answer: B

10. 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



11. 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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12. 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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13. 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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14. Dead space is

A. respiratory tract

B. nasal chambers only

C. alveolar space

D. pleural cavity

Answer: A

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15. 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. Efflux of CI form plasma

C. Influx of HCO_3 ions I RCB

D. Efflux of HCO_3 ions from RBC

Answer: C

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16. 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

17. Which is true ?

A. PcO_2 of deocygenated 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

18. With decrease in temperature, oxyhaemoglobin curve will become

A. straight

B. more steep

C. parabola

D. none of these

Answer: B

19. Which is true?

A. H^+ ions released from carbonic acid combine with haemoglobin to form haemoglobinic acid B. oxyhamoglobin of ertyhrocytes is alkaline C. more than 70% of carbon diodxide is trnsferred form tissure to lungs as carbam in to compunds

D. in healthy person haemglobin cont ent

is more thant $25 \frac{g}{100}$ ml

Answer: A

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20. Which is the correct sequence of air passage during inhalation? A. nasal caity \rightarrow pharynx \rightarrow trachea

ightarrow larynx ightarrow bronchi ightarrow bronchioles

ightarrow 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





21. Food and air pathways are divided at

A. larynx

B. pharynx

C. stomach

D. oesophagus

Answer: B



22. Glotties is a opening in the floor of

A. mouth

B. trachea

C. pharynx

D. diaphragm

Answer: C

23. Thyroid cartilage and arytenoid cartialge are found in

A. throid gland

B. pharynx

C. Larynx

D. Ear pinna

Answer: C

24. Adam's Apple represents

A. cirocid carilage

B. thyroid cartilage

C. pharynx

D. none of these

Answer: B



25. The structrue which does not contribute to

the breathing movements in mamals s

A. rib

B. larynx

C. diaphragm

D. intercostal muscles

Answer: B

26. In human, oblique fissure is present in

A. right lung

B. left lung

C. both lungs

D. diaphragm

Answer: C

27. 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. chitinous rings

D. cartilaginous rings

Answer: D

28. 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

29. The narrowest and most numerious tubes

of lungs are termed as

A. hillum

B. alveoli

C. tracheae

D. bronchiloes

Answer: D

30. Terminals bronchioles brach to from

A. alveoli

B. bronchiles

C. alveolar duct

D. respeiratory bronchiole

Answer: D

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

A. trachea

B. secondary bronchiole

C. respiratory bronchiole

D. left primary bronchus

Answer: C

32. Lungs alveoli of mammals have a thin wall

composed of

A. simple cuboidal epithelium

B. simple squamous epithelium

C. stratified cuboidal epithelium

D. stratified squammous epithelium

Answer: B

33. The alveolar epithemlium in the lung is

A. cilitate columnar

B. cilitated squamous

C. nonciliated squamous

D. noncillated columnar

Answer: C
34. Presence of large number of alveloli around alveolar ducts opening in to bronchiles 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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35. Which structure are responsible for breathing process?

A. larynx and bronchi

B. tracheae and alveoli

C. ribs, intercostal muscles and diaphragm

D. Diaphragm

Answer: D

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36. Which of the following statements is correct ?

A. inspiration is an active process

B. inspiratin is a passive process

C. expiratin is an active provess

D. both expiration and inspiration ar

passive processes

Answer: A

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37. During expiration, the diaphragm becomes

A. normal

B. pobliquae

C. flatttened

D. dome shapped

Answer: D



38. During inspiration the diaphragm

A. relaxes to become dome shaped

B. contracts and flattens

C. showns no change

D. expands

Answer: B

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39. 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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40. 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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41. 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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42. The contractio of internal intercostal

muscles in man causes

A. normal expiration

B. inspiration

C. forced expiration

D. normal respriation

Answer: C

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43. During forced expiration , actively

contracting muscles

A. diaphragm

B. external intercostals

C. abdominal muscles

D. all of these

Answer: C

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44. With refernce to human repiration which is

correct ?

A. pulmonary ventialtion is equa	ıl 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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45. 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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46. 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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47. Which of the following statements best summarizes the relationship between respiratory rate and body size in related animals ?

A. larger the animal higher the respiration

rate

B. smaller the animal lower the respiration

rate

C. smaller then animals higher the

respiration rate

D. size and respiratory rate are not related

in any fashion

Answer: C

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

A. increase in O_2 content of inhaled air

B. decrease in O_2 content of exhaled air

C. increase of CO_2 content in inhaled air

D. increase of CO_2 cotent in exhaled air

Answer: C

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49. 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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50. 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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51. Tidal volume in human being is

A. 500 mL

B. 800 mL

C. 1000 mL

D. 1200 mL

Answer: A



52. 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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53. 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. inspirting reserve volume

D. functin residual capacity

Answer: D

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54. 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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55. 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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56. vital capacity of lungs of an average human

is

A. 1200 MI

B. 2400 MI

C. 4000 MI

D. 6000 MI

Answer: C

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57. 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. inspirting reserve volume

D. total lung capacity

Answer: B

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58. The maximum amount of air that our lung

can normally hold is

A. vital capacity

B. tidal capacity

C. total lung capactiy

D. pulmonary capacity

Answer: C

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59. 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 Watch Video Solution

60. Arrange the following in the order of increasing volume

- 1) Tidal volume
- 2) Redidual volume
- 3) Expiratory reserve volume
- 4) Vital capacity

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

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

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

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

Answer: B



61. Match the items in column I with column II

	Column I	Column II
A	Tidal volume	1. 2500 to 3000 mL of air
в	Inspiratory reserve volume	2 1000 mL of air
С	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. 1 < 3 < 2 < 4

B. 1 < 2 < 3 < 4

 ${\sf C}.\,1 < 4 < 3 < 2$

D. 1 < 4 < 2 < 3

Answer: D

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62. Expiration Reserve capacity of lungs is

A. 3500 mL

B. 1000 mL

C. 6000 mL

D. 3000 mL

Answer: B

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63. The alveolar ventilation is the

A. amount of air available for gas exchange

in the lungs

B. vital capacity divided by the respiratory

rate

C. tidal volume times the respiratory rate

D. minute ventialation plus the dead space

Answer: A

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

- A. 104 mmHg
- B. 120 mmHg
- C. 40 mmHg
- D. 90 mmHg

Answer: A



65. 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 expireed air than in alveolar air

D. more in inspired air than in alveolar air

Answer: B

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66. How the transport of O_2 and CO_2 by

blood happens?

A. with the help of rbcs and wbcs

B. with the elp of wbcs and blood serum

C. with the help of platelets and plasma

D. with the help of rbcs the blood plasma

Answer: D

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67. Oxygen is transproted in blood mainly by

A. leucocytes
B. erthrocytes

C. serum

D. blood plasma

Answer: B

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68. Which form of iron is foud in haemoglobin

?

A. fe^{2+}

 $\mathsf{B.}\,fe^{3\,+}$

C. in the form of molecule

D. in the form of feO

Answer: A

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69. The chemical formula of oxyhaemoglobin is

A. $Hb(O_2)_4$

 $\mathsf{B}.\,Hb(O_3)_4$

 $\mathsf{C}.\,Hb_2O_2$

 $\mathsf{D}.\,Hb(O_2)_6$

Answer: A



70. how many molecules of oxygen are bound

to one molecule of haemoglobin

A. one

B. two

C. three

D. four

Answer: D



71. 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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72. Percentage of oxygen supplied by

haemoglobin is

B. 0.7

C. 0.97

D. 1

Answer: C

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73. The precentage of haemoglobin satureated

with oxygen will increase if the

A. arterial pH is decreased

B. temperature is incrased

C. arterial P_2 is incrased

D. CO_2 concentration is increased

Answer: C

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74. Which of he following increases the oxygen

affinity of Hb?

A. decrease in pH

B. decrease in acidity

C. decrease in temperature

D. decrease in co_2 concentration

Answer: B

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75. 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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76. Dissociation of oxyhaemoglobin can be promoted by

A. low p_{co_2}

B. high p_{co_2}

C. high blood pH

D. low body temperature

Answer: B

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77. 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

78. 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

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

A. pH

B. carbondioxide

C. metabolism

D. temperature

Answer: A

80. Bohr effect is the efect of

A. CO_2 on RBCs

B. O_2 on the hemoglobin

C. CO_2 on haemoglobin

D. CO_2 on oxygaemglobin

Answer: D

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

A. fall in P_{50} with a decrease in pH

B. rise in P_{50} with a decrase in CO_2

concentration

C. Rise in P_{50} with an increase in CO_2 concentration

D. Rise in P_{50} with an increse in pH and decrease in P_{co_2}





82. CO_2 is carried in blood as

- A. sodium bicarbonate
- B. sodium carbonate
- C. potassium carboate
- D. magnesium carbonate

Answer: A



83. Bicarbonate ions are generated in

A. RBCs

B. basophil

C. neutrophil

D. lymphocytes

Answer: A

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

85. Enzyume involved in CO_2 tranport blood is

A. carboxylase

- B. carboxykinase
- C. carboic anhydrase
- D. none of these

Answer: C



86. Haemoglobin is a

A. Structural protein

B. Fibrous protein

C. Globular protein

D. None of these

Answer: A

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

88. Hamburger phenomenon explains

A. chloride shift

B. formation of HCO_3

C. breathing mechanism

D. oxygen saturation of hb

Answer: A

89. Chloride shift occurs in respond to

A. $H^{\,+}$

 $\mathsf{B.}\,K^{\,+}$

C. Na^+

D. HCO_3

Answer: D

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

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

92. Which is true for CO_2 partial pressure ?

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

B. it is higer 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 artieries





93. Haemoglobin is having maximum affinity with

A. NH_3

B. O_{23}

 $\mathsf{C}.\,CO$

 $\mathsf{D.}\,CO_2$

Answer: C



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

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

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

97. The inspiratory and expiratory centres in

man are located in

A. pons

B. cerebellum

C. medulla oblongata

D. one in pons and the other in cerebellum

Answer: C

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

99. Which oof these parts of the barinsterm is

corectly matched with its main function ?

A. ventral respiratory groups stimulate the

disaphragm contractin

B. dorsal respiratory groups limit inflation

of the lungs

C. pontine respriatory group switch

between inspiration and expiration

D. all of the above

Answer: C



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



101. Repiratory 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


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

103. The impulse for voluntary muscles for

forced breathing starts in

A. medualla

B. cerebrum

C. spinai cord

D. vagus nerve

Answer: B

104. The number of RBCs in man increases if he lives at a higher altitude because A. there is less oxygen in mountains

- B. there is more oxygen at the mountains
- C. there are no germs in the sair in

mountain

D. more heat is required to be produced in

the body for keeping warm

Answer: A

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

A. have fewer wbcs

B. have more plasma

C. have increase in volume of serum

D. have greater number of rbcs and more

haemoglobin

Answer: D



106. When some food particle enters the wind pipe instead of oesophagus it is expelled by the process of

A. sneezing

B. coughing

C. yawning

D. hiccupping





107. Lack of breathing is

A. apnea

B. eupnea

C. dyspnea

D. asphyxia

Answer: A



108. Ordinary quiet breathing is

A. apena

B. eupnea

C. dyspnea

D. asphyxia

Answer: B

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

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

A. asthma

B. bronchities

C. pneumonia

D. emphysema

Answer: A

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



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



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
В	Bronchitis	2.	Spasm of tracheal muscle
С	Rhinitis	3.	Fully blown out alveoli
D	Emphysema	4.	Inflammation of bronchi
		5.	Cough with blood stained sputum

Answer: B



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



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





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

A. present in peroxiosmes

B. remains in lungs

C. trapped inside the mitochondria

D. dissolved in plasma and transporte

Answer: D

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

118. Lack of pulmonary surfactant produces

A. asthma

B. emphysema

C. cystic fibrosis

D. respiratory distress syndrome

Answer: D

119. In the resting person saturation of haemoglobin as blood leaves the tissure capillaries is approximately

A. 0.75

B. 0.4

C. 0.03

D. 0.46

Answer: A



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. asphuyxia

B. apnea

C. dyspenea

D. hypoxia

Answer: D

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

A. alkalosis

B. hypoxia

C. increased hbf

D. huypothermia

Answer: B

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123. All are features of exercise except

A. left shift of hb $-O_2$ dissolcation curve

B. increased blood supply to muscle

C. increase stroke volume

D. increase O_2 extraction

Answer: A



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

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125. The metal present in hemoglobin is

A. Copper

B. Iron

C. Chromium

D. Manganese

Answer: B

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126. The respiratory pigment present in human blood is

A. Melanin

B. Hemoerythrin

C. Hemoglobin

D. Hemocyanin

Answer: B

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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



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

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



which option correctly indicates the normal pCO_2 level (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



130. When CO_2 is exhaled out of the lungs which layters 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 endotrhelium



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

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


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

 $\mathsf{D}.\,(iii)<(iv)<(ii)<(i)$

Answer: A

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134. Increase in concentration of bicarbonated in blood plasam would result in increased

A. ventilation of lungs

B. urination

C. ultrafiltration

D. salivation

Answer: A

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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 incrase in tidal volume (iii) partial pressure of oxygen in blood is less

than that in alveoli

(iv) chloride shift in ertyrocytes maintain the

ionic ablance

A. I and ii

B. I iii and iv

C. I ii andiv

D. ii and iii

Answer: B

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136. Read the following statements

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



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



- **138.** Go thruogh the following values
- (i) residual volume -1200 ml
- (ii) vital capacity -3-5 ltr
- (iii) expiratory reserve -1100ml
- (iv) minut e respiratory volume -6000 to 8000
- Itrbgt which of these are correct ?

A. I , ii & iii

B. ii, iii & iv

C. I , ii & iv

D. all are correct

Answer: C

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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 penumotaxic center is to control the switch off point of inspiratory signal and thus limit inspiration (iii) the chemosensitve area for brain for respiratory control is highly sensitive to O_2 concentration (iv) i case of fetal hemoglobin the oxygen hemoglobin 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

Answer: B



140. Go through the following statements

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

50 mm gh

(ii) maternal haemolgobin has greater afinity

for O_2 as compared to foetal haemoglobib

(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

Answer: D



141. O_2 dissociation curve is shifted to right in

all except

A. hyper capenea

B. rise in temperature

C. raised 2.3 dpg level

D. metabolic alkalosis

Answer: D





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



dissociation curve to the light

Answer: C



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

A. an increase in 2,3 dpg concentration

which shifts the O_2 dissociation curve to

the right

B. increased porduction of red blood cells

by the bone marrow

C. decreased systhesis of ertyropoietin 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

Answer: C



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. Deprived oxygen concentration in blood is

referred to as

A. Angina

B. Anemia

C. Diabetes

D. Asphyxia

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



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



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

- 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. slow and deep

B. faster and deeper

C. shallowere and slow

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. carbon dioxide

B. carbon monoxide

C. carbon disulphide

D. chloroform

Answer: B

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 breth and more oxygen is availabel B. atmospheric O_2 level is less and hence more rvcs are needed to absorb the required amount of O_2 to sruvivie C there is ore uv radiation which enhanes r bc 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 incorrect ?

A. the residual air in lungs slightly decreases 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

distributed oxygen to tissues
D. the principal of countercurrent 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 reserve volume D. inspiratory reserve volume plus expiratory reserve volume

Answer: A

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161. The haemoglobin of humen foetus

A. has a higher affinity for oxygenthan that

of an adutl

B. has a lower affintiy 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 subunite instead fo 4

Answer: A



162. The r espiratory centre in medulla is sensitive to

A. high cop_2 and high h^+ concentration

B. low o_2 concentration

C. high Co_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

capacities	volumes
(i) Residual volume(ii) Vital capacity	2500 mL 3500 mL
(iii) Inspiratory reserve volume	1200 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 (A-B) usually tend to occur in the plain dwellers when they move to high altitudes (3500 m or more)

(A) Increase in red blood cell size

(B) Increase in red blood cell production

(C) Increased breathing rate

(D) Increase in thrombocyte count

A. I and ii

B. ii and ii

C. iiii and iv

D. I and iv

Answer: B



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 be low 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 - excahge of o_2 and cO_2

takes place here

D. b: red blood cell trransport 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





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



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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 conscioulsly breathe in and breathe out by moving the diaphragm alone without moving the diaphragm alone without moving the rigs at all

D. the lungs can be made fully empty by forcefully 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 cO₂ in blood plasma
C. 70% carbamino haemoglobin and 30 % as bicarbonate
D. carbamino haemoglobin in RBCs

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171. Oxygen dissociation curve of haemoglobin

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



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

A. 3 percent

- B. 97 percent
- C. 70 percent
- D. 7 percent

Answer: B



175. What percent (%) of CO_2 is transported

as bicarbonate (HCO_3) ?

A. 70%

B.7%

C. 20-25%

D. 97%

Answer: B

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176. Muscles contains a red coloured oxygen

storing pigment called : -

A. Haemoglobin

B. myoglobin

C. erythrocruorin

D. hemolymph

Answer: B

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177. Expiratory reserve volume is

A. 1.8 ltr

B. 1.1 ltr

C. 2.3 ltr

D. 3.2 ltr

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



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 carinoma

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 of lungs

D. arterioles

Answer: C

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181. Oxygen carrying capacity of human blood

is reduced due ot the pollution of

A. CO_2 on RBCs

- $\mathsf{B.}\,CO$
- $\mathsf{C}.\,SO_2$
- D. O_3

Answer: B

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182. Haemoglobin value for a healthy adult

male is

A. 10g/100ml

B. 11g/100ml

C. 12g/100ml

D. 14 - 15g/100ml

Answer: D

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183. The exchange of gases between blood capilaries and alveoli in the lung is thrugh

- A. simple diffusion
- B. active transport
- C. osmosis
- D. facilited diffusion

Answer: A



184. The factor which does not affect the rate

of alveolar diffusion is



A. solubility of gases

- B. thickness of the memebranes
- C. pressure gradient
- D. conentration gradient

Answer:



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

- A. pons region of brain
- B. thatlamus
- C. spinal cord
- D. right cerebral hemsphere



arteries

C. deficeincy o foygen in body tissures

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_2O_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

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

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

A. as carbamio=no haemoglobin

B. as bicarbonate ions

C. in the form of dissolved gas moleculs

D. by binding to rbc

Answer: B





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





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

A. asthma

- B. respiratory acidosis
- C. respiratory alkalosis
- D. emphysema





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



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



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 nu	mber of bron	chioles in	
creased resiratory surface			
D. inflammation of bronchiloes decreased			
respiratory surface			

Answer: D

199. Match the items given column I with those

in column II and select the correct option

given below :

Column I

- (a) Tidal volume
- (b) Inspiratory **Beserve** volume
- (c) Expiratory **Reserve** volume

Column II

- (i) 2500–3000 mL
 - (ii) 1100–1200 mL
- (iii) 500–550 mL
- (d) Residual volume (iv) 1000-1100 mL

A. iv iii ii l

B. Liviiiii

C. iii I iv ii

D. iii ii l iv

Answer: C