NEET REVISION SERIES

BREATHING AND EXCHANGE OF GASES

Revise Most Important Questions to Crack NEET 2020



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Q-1 - 14145534

Match column I with column II and select the correct option from

the given codes.

- Column I
- (Animals)
- A. Pigeon
- B. Scorpion
- C. Planaria
- D. Earthworm
- E. Spiders
- F. King crab

- Column II
- (Respiratory structures)
- (i) Book gills
- (ii) Pharyngeal wall
- (iii) Lungs
- (iv) Gilles
 - (v) Book lungs
 - (vi) Body surface





H. Labeo



$$egin{aligned} A-(iii), B-(v), C\ -(vi), D-(vii), E\ -(v), F-(i), G\ -(iv), H-(iv) \end{aligned}$$

(B)
$$A - (v), B - (ii), C$$

 $- (vi), D - (vii), E$
 $- (vi), F - (iv), G$
 $- (i), H - (iii)$

$$egin{aligned} A &- (vi), B - (iv), C \ &- (vi), D - (v), E \ &- (i), F - (ii), G \ &- (iii), H - (vii) \end{aligned}$$

(D)
$$A-(i),B-(vi),C$$

- (vii), D - (iii), E- (vii), F - (ii), G-(iv), H-(vi)

CORRECT ANSWER: A



Q-2 - 55653673

Lack of pulmonary surfactant produces

(A) asthma

(B) emphysema

(C) cystic fibrosis

(D) respiratory distress syndrome

CORRECT ANSWER: D

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Q-3 - 18703587

It is much easier for a small animal to run uphill than for a large

animal, because:

(A) it is easier to carry a small body weight

(B) samaller animals have a higher metabolic rate

(C) smaller animals have a lower O_2 requirement

(D) the efficency of muscles in large animals is less than

in the small animals

CORRECT ANSWER: B

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Q-4 - 18703578

which mammal lacks vocal cords



(B) Elephant

(C) Hippoptamus



CORRECT ANSWER: C

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Q-5 - 14145535

Which structure of man is similar to spiracle of cockroach?

(A) Nostril

(B) Bronchiole

(C) Lung

(D) Alveolus

CORRECT ANSWER: A

SOLUTION:

Spiracle in cockroach and nostril in man are the

opernings through which air enters the body.



Q-6 - 18703583

- Oxygen content reduction makes the glycolyse (glycogenesis)
- intensity increased due to
 - (A) Increse of ADP concentration in cell
 - (B) Increase of NAD^+ concentration in cell
 - (C) Increase of ATP concentration in cell
 - (D) Increase of concentration of peroxides and free

radicals

CORRECT ANSWER: A



Chloride shift occurs in respond to

(A) $K^{\,+}$

(B) Na^+

(C) H^+

(D) HCO_3^-

CORRECT ANSWER: D

SOLUTION:

Bicarbonate ions which are formed inside the RBC

diffuse from RBC into the plasma. To maintain the onic

balance CI^- ions move from plasma into RBCs. This

ionic exchange is call chioride shift or Hamburger s

phenomenon.



?

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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 breathing rate

(C) no change in respiration

(D) cessation of breathing

CORRECT ANSWER: D

SOLUTION:

The movement of air into and out of the lungs is carried out by creating a pressure gradient between the lungs and the atmosphere. The pressure within the lungs is less than the atmospheric pressure so there is a negative pressure in the lungs with respect to

atmospheric pressure.

The puncture in the chest affects this pressure gradient

maintained by the lungs and thus may cause cessation

of breathing.

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Q-9 - 18703503

Respiration in insects Is called direct because

(A) The tissues exchange $O_2 \,/\, CO_2$ directly with the air in the tubes

(B) The tissues exchange $O_2 \,/\, CO_2$ directly with coelomic fluid

(C) The tissues exchange $O_2 \,/\, CO_2$ directly with the air outside through body surface

(D) Tracheal tubes exchange $O_2 \, / \, CO_2$ directly with the

haemocoel which then exchange with tissues

CORRECT ANSWER: D



Q-10 - 14145544

Lungs are enclosed in

(A) perichondrium

(B) pericardium

(C) pleural membrane

(D) peritoneum.

CORRECT ANSWER: C

SOLUTION:

The lungs are covered in a membrane called pleural

membrane. The outer covering is called parietal pleura

and the inner covering is called visceral pleura.



Q-11 - 18703570

the haemoglobin of a human foetus

(A) has only 2 protein subunits instead of 4

(B) has a higher affintiy for oxygen than that of the adult

(C) has a lower affintiy for oxygen than that of the adult

(D) its affinity for oxygen is the same as that ofa n adult

CORRECT ANSWER: B

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Q-12 - 14145576

Consider the following statement each with two blanks.

(i) Diaphragm contrects to help in (1) while the contraction of

abdominal muscles help in (2).

(ii) Vital capacity of trained atheles is (3) than that of nonathletes while the vital capacity of non-smokers is (4) than that of smokers.

Which of the follwoing options gives the correct fill ups for the respective blanks numbered from (1) to (6) in the above statements ?

(A) (1)-expiration, (2)-inspiration, (5)-higher, (6)-lower

(B) (3)-higher, (4)-lower, 5-lower (6)-higher

(C) (1)-inspiration, (2)-forced expiration, (3)-higher, (4) -higher

(D) (1)-expiration (2)-forced expiration (5)-higher (6)-

$$(D)(T)$$
-expiration, (Z) -iorced expiration, (D) -ingrier, (D) -

lower

CORRECT ANSWER: C



Q-13 - 30970436

Much developed larynx of human maie is called

(A) Aristole's lantern

(B) Syrinx

(C) Adam's apple

(D) Muller's organ

CORRECT ANSWER: C

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Q-14 - 18703519

True organ of sound production in birds is

(A) Larynx

(B) Sound box

(C) Vocal sac

(D) Syrinx

CORRECT ANSWER: D

SOLUTION:

syrinx is a sound producing organ in birds.

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Q-15 - 14145577

Which of the following would have the same O_2 content?

(A) Blood entering the lungs and blood leaving the lungs

(B) Blood entering the right side of the heart and blood

leaving the right side of the heart

(C) Blood entering the right side of the heart and blood

leaving the left side of the heart

(D) Blood entering the tissue capillaries and blood

leaving the tissue capillaries

CORRECT ANSWER: B

SOLUTION:

Blood entering the right side of the heart i.e., right atrium is a deoxygenated blood having partial pressure of 40 mm Hg. Blood leving the right side of the heart i.e., right ventricle will also have almost same partial pressure as

the blood is moving from right atrium to right ventricle

and also no exchange of gases occurs blood it is 40 mm





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

(A) There is a positive intrapleural pressure

(B) Pressure in the lungs is higher than the atmospheric pressure

(C) There is a negative pressure in the lungs

(D) There is a negative intrapleural pressure pulling at the lung walls

CORRECT ANSWER: D



Q-17 - 18703533

When a man inhales air containing normal concentration of O_2 as

well as CO he suffers from suffocation because

(A) CO reacts with O_2 reducing its percentage in air

(B) Haemoglobin combines with CO instead of O_2 and the product cannot dissociate

(C) CO affects diaphragm and intercostal muscles

(D) CO affects the nerve of the lungs

CORRECT ANSWER: B

SOLUTION:

Carbon monoxide has 210 times more affintiy with

haemoglobin as compared to O_2 and forms a stable

compound.



Which of the following option is incorrect about the larynx (sound box) ?

- (A) It is a bony box
- (B) Glottis is the opening into the larynx.
- (C) During swallowing of food glottis is covered by
- epiglottis to prevent food entry into the larynx.

(D) All of these

CORRECT ANSWER: A

SOLUTION:

Larnx is a cartilaginous box containing nine pieces of

cartilages.



Cyanosis is

- (A) Lack of oxygen in body fluids
- (B) Difficult or heavy breathing
- (C) Excess of carbon dixode in the body fluids
- (D) Skin turning blue due to excessive amount of
- deoxygenated haemoglobin in the skin blood vessels

CORRECT ANSWER: D

SOLUTION:

Cyanosis is blueness of skin and occurs due to large

amount fo deoxygenated hemoglobin in cutaneous





Blood carries the CO_2 in three forms. The correct percentages of

 CO_2 in the these form are

(A)

As carbamino-haemoglobin in RBC As bicarbonate 20 - 25% 70%

(B)

As carbamino-haemoglobin in RBC As bicarbonate 70~% 20-25~%

(C)

As carbamino-haemoglobin in RBC As bicarbonate 20-25% 7 %

(-)

As carbamino-haemoglobin in RBC As bicarbonate



$$20-25\,\%$$

CORRECT ANSWER: A



Q-21 - 30970295

Blue copper protein complex contained in some molluscs 1n their

plasma for oxygen transport is

(A) Haemocyanin

(B) Chlorocruorins

(C) Bilimbin

(D) Haemoglobin

CORRECT ANSWER: A

SOLUTION:

Blue copper protein complex contained in some

molluscs in their plasma for oxygen transport is

Haemocyanin.

Q-22 - 14145557

Accoding to Boyle's law, the product of pressure and volume is a constant. Hence,

(A) If volume of lungs is increased, then pressure decreases proportionately

(B) if volume of lungs is increased, then pressure also

increases proportionately

(C) if volume of lungs is increased, then pressure decreases disproportionately

(D) if volume of lungs is increased, then pressure

remains the same.

CORRECT ANSWER: A

Q-23 - 18703551

Which of the following options correctly represents the lung

conditions in asthma and emphysema, respectively

(A) Inflammation of bronchioles, Decreased respiratory surface

(B) Increased number of bronchioles, Increased respiratory surface

(C) Increased respiratory surface, Inflammation of bronchioles

(D) Decreased respiratory surface, Inflammation of

bronchioles

CORRECT ANSWER: A



Q-24 - 14145584

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



(A) solubility of gases

(B) thickness of the membranes

(C) pressure gradient

(D) reactivity of the gases.

CORRECT ANSWER: D

SOLUTION:

 O_2 and CO_2 are exchanged in the alveoli by simple diffusion. The factors that affect the diffusion are pressure gradient of the gases, solubility of the gases and the thickness of the membranes involved in diffusion.

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Q-25 - 30970324

SARS is caused by the variant of

(A) Pneumococcus pneumonia

(B) Common cold corona virus

(C) Asthma

(D) Bronchitis

CORRECT ANSWER: B

SOLUTION:

SARS (Severe Acute Respiratory Syndrome) is caused

by a variant of common cold corona virus.

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Q-26 - 18703492

Congestion of the lungs is one of the main symptoms in

(A) Hypotension

(B) Coronary artery disease

(C) Angina

(D) Heart failure

CORRECT ANSWER: D

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Q-27 - 18703477

During strenous exercise, which of the following change occurs

(A) Glucose is converted into glycogen

(B) Glucose is converted into pyruvic acid

(C) Starch is converted into glucose

(D) Pyruvic acid is converted into lactic acid

CORRECT ANSWER: D



The inspiratory reserve volume + tidal volume + expiratory reserve volume is the same as

(A) inspiratory capacity + expiratory reserve volume

(B) total lung capacity — funcational residual capacity

(C) inspiratory capacity + functional residual capacity

(D) inspiratory capacity + residual volume.

CORRECT ANSWER: A

SOLUTION:

Inspiratory reserve volume (IRV) + tidal volume (TV) +

expiratory reserve volume (ERV) represents vital

capacity (VC). Now, inspiratory capacity is the total

volume of ai that can be inhaled after a normal

expiration. It includes tidal volume and inspiratory reserve volume i.e., IC = TV + IRV. Thus, option (a) is correct which says that vital capacity i.e., IRV + TV +ERV = IC + ERV.



Q-29 - 18703515

The oxygen - haemoglobin dissociation curve will show a right shift

in case of

(A) High pCO_2

(B) High pO_2

(C) Low pCO_2

(D) Less H^+ concentration

CORRECT ANSWER: B

Q-30 - 55655605

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. Combination 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

CORRECT ANSWER: C

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Q-31 - 14145548

Inspiration occurs when there is a negative pressure in the lungs

with respect to atmospheric pressure. This negative pressure is

achieved when

(A) intrapulmonary pressure is less than the atmospheric

pressure

(B) Intrapulmonary pressure is greater than the

atmospheric pressure

(C) intrapulmonary pressure is equal to the atmospheric

pressure

(D) intrapleural pressure becomes more than the intra-

alveolar pressure.

CORRECT ANSWER: A

SOLUTION:

Because of the pressure gradient between the lungs and the atmosphere, the air moves into and out of the lungs. Inspiration occurs if the pressure within the lungs (intrapulmonary pressure) is less than the atmospheric pressure i.e. there is a negative pressure in the lungs with respect to atmospheric pressure.



Q-32 - 18703568

voice in mamal produced

(A) br syrinx

(B) by bronchus

(C) During inhalation

(D) During exhalation

CORRECT ANSWER: D

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Q-33 - 55655611

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

CORRECT ANSWER: B

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Q-34 - 18703497

The blue baby syndrome results from

(A) Excess of dissolved oxygen

(B) Excess of TDS (total dissolved solids)

(C) Excess of chloride

(D) Methaemoglobin

CORRECT ANSWER: D





Q-35 - 14145555

Exhalation is the process of expulsion of air through the respiratory

tract. Which figure illustrates the process of exhalation?





CORRECT ANSWER: D



Which of the following sequenes is correct to intite inspiration?

- (i) the contraction of external intercostal muscles raises the ribs and sternum
- (ii) Volume of thorax increases in the dorso-ventral axis
- (iii) intrapulmonary pressure decreases
- (iv) Diaphragm contraction
- (v) Air rushes into lungs
- (vi) Volume of thorax increases in the anterior-posterior axis

(A)
$$(i), (ii), (iv), (v), (iii),$$
 (vi)

(B)

$egin{aligned} (i),\,(ii),\,(iii),\,(iv),\ (vi),\,(v) \end{aligned}$

(C)

(i), (ii), (iv), (vi),(iii), (v)(D) (vi), (v), (i), (ii), (iii),

CORRECT ANSWER: C

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Q-37 - 30970290

(iv)

Oxy-haemoglobin dissociates into oxygen and deoxy-haemoglobin

at

(A) Low pO_2 in tissues

(B) High pO_2 in tissues

(C) Low pCO_2 in tissues

(D) All times irrespective of pO_2

SOLUTION:

See Answer for Q.85.

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Q-38 - 55655302

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Q-39 - 18703580

the haeme - protein complexes which act is oxidising agents are

(B) myoglobin

(A) haemoglobin

known as

(C) Chlorophyll

(D) Cytochrome

CORRECT ANSWER: D

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Q-40 - 14145619

Pneumotaxic centre which can moderate the funcations of the

repiratory rhythm centre is present in

(A) pons region of brain

(B) thalamus



(D) right cerebral hemisphere.

CORRECT ANSWER: A

SOLUTION:

Pneumotaxic centre is present in the dorsal part of the pons varoli of the brain. Its function is primarily to limit inspiration.

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Q-41 - 55653695

- 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 iwder and more in line with trachea

than the let bronchus

(iii) the bronchioles are without cartilaginous rings

(iv) the surfactant of lungs is secrated in infants between 6th and 7th

month o flife

which of these are correct?

(A) I,ii & iii

(B) ii , iii & iv

(C) I, iii & iv

(D) all are correct

CORRECT ANSWER: A

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Q-42 - 18703695

Inuyuuv vrupt anu ZIU MOICEP(D) reyalive Supe allu TIUIT

ZUIU HeltepeThe catalysts decrease the Efrom 100 KJ mol-' to 80

kJ mol?. At what temperature the rate of reaction in the absence of

catalyst at 500 K will be equal to rate of reaction in presence

ofcatalyst.(A) 400 K(B) 200 K(C) 625 K(D) None of these



Q-43 - 14145554

During expiration, the diaphragm becomes

(A) dome-sphaped

(B) oblique

(C) concave

(D) flattened.

CORRECT ANSWER: A

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Q-44 - 55653741

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

CORRECT ANSWER: B

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Q-45 - 55653674

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

CORRECT ANSWER: A

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Q-46 - 18703582

Read the following statements and select the correct one

(A) The H^+ relased form carbonic acid combines with haemoglobin to form heamoglobinic acid

(B) oxyheamoglobin of erthrocytes is alkaline

(C) more than 70 % of carbon dioxide is transferred from

tissues to the lungs in the form of carbamino compounds

(D) in a healthy person, the haemoglobin content is

more than 25 gms per 100 ml

CORRECT ANSWER: A

Q-47 - 55653745

Muscles contains a red coloured oxygen storing pigment called

(A) Haemoglobin combines with co instead of with ${\cal O}_2$ and product cannot dissociate

(B) myoglobin

(C) erythrocruorin

(D) hemolymph

CORRECT ANSWER: B



A person breathing normally at rest, takes in and expels approximately half a litre of air during each respiratory cucle. This is called

(A) inspiratory reserve volume

(B) tidal volume

(C) expiratory reserve volume

(D) vital capacity.

CORRECT ANSWER: B

SOLUTION:

The volume of air inspired or expired during normal

breath is called tidal volume. It is about 500mL of air in

average young adult man.



Haemoglobin is having maximum affinity with

(A) CO_2

(B) CO

(C) O_2

(D) NH_3

CORRECT ANSWER: B

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Q-50 - 55653702

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

CORRECT ANSWER: C

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Q-51 - 18703545

Buccopharyngeal respiration in frog

(A) Is increased when nostrils are closed

(B) Stops when there is pulmonary respiration

(C) Is increased when it is catching fly

(D) Stops when mouth is opened

CORRECT ANSWER: D

SOLUTION:

this process occurs though nares and mouth and gullet

are kept closed during the process.

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Q-52 - 30970356

the partial pressure of oxygen in the alveolar air is



(B) 125 mm Hg

(C) 100 mm Hg

CORRECT ANSWER: D

SOLUTION:

Partial pressure of oxygen in alveolar air is 104 mm Hg.

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Q-53 - 18703538

Rate of respiration is directly proportional to

(A) Concentration of oxygen in blood

(B) Concentration of carbon dioxide in blood

(C) Oxygen in trachea

(D) Diaphragm expansion

CORRECT ANSWER: B

SOLUTION:

Due to direct chemical contral on respiratory centres,

 CO_2 stimulates respiratory centres in CNS.

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Q-54 - 55653736

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

CORRECT ANSWER: D

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Q-55 - 18703549

Which of the following statement (s) is/are correct

(A) Silicosis is the result of exposure to silica that caused

permanent lung damage and death

(B) Transportation of gases and digested food materials in the body of higher animals causes muscle weakness and fatigue

(C) ADH is a neurohypophysial hormone that regulates

body water

(D) Myasthenia gravis is a neuromuscular disease that is

CORRECT ANSWER: ACD

SOLUTION:

silcosis is an occupational lung disease that causes progressive respiratory failure and death. ADH is synthesized from hypothalamic nulclei and are responsible for water absorption by nephron. Myasthenia gravis is an autoimmune disorder mediated by antibodies.

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Hiccough (hiccup) is due to acitivty of

(A) Intercostal muscles

(B) F ood in air tract

(C) Diaphragm/Jerky incomplete inspiration

(D) Inadequate oxygen in environment

CORRECT ANSWER: C

SOLUTION:

Hiccough (hiccup) is due to activity of diaphragm/ Jerky

incomplete inspiration.

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Q-57 - 18703472

What is R.Q. for human fat

(A) 0.673

(B) 0.655



(D) 0.825

CORRECT ANSWER: C

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Q-58 - 30970349

Epithelium lining bronchiole is

(A) Pseudostratified colurrmar

(B) Pseudostratiiied sensory

(C) Squamous sensory

(D) Cuboidal and columna

CORRECT ANSWER: A

SOLUTION:

Epithelium lining bronchioles is pseudostratilied

columnar.



Q-59 - 18703543

Hamburger phenomenon is also known as

(A) Hydrogen shift mechanism

(B) Chloride shift mechanism

(C) Carbonic acid shift mechanism

(D) Sodium -potassium pump

CORRECT ANSWER: B

SOLUTION:

to maintain electrostatic neutrality of plasma, many

chloride ions diffuse from plasma into RBCs and

bicarbonate ions pass out. The chloride content of RBCs

incease when oxygenated as chloride shift or

Hamburger phenomenon.

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