**MASTERS PRE-UNIVERSITY COLLEGE, HASSAN 573201.**

**Subject: BIOLOGY**

**BREATHING AND EXCHANGE OF GASES**

1. Vocal cords are situated at

(a) Pharynx

(b) Larynx

(c) Glottis

(d) Bronchial tube

1. External gills, tracheae, and lungs all share which of the following sets of characteristics?

(a) Part of gas-exchange system, exchange both CO2 and O2; increase surface area for diffusion.

(b) Used by water breathers; based on countercurrent exchange; use negative pressure breathing.

(c) Exchange only O2; are associated with a circulatory system; found in vertebrates.

(d) Found in insects; employ positive-pressure pumping based on crosscurrent flow.

1. Which one of the following four organs is correctly matched with its characteristics?

Column - I Column - II

Organs Characteristics

A. Bronchi Two branches of the trachea that brings air

into the lungs.

B. Trachea Small flap that prevents food from entering

C. Diaphragm Dome shaped muscle that pushes on the

lungs during exhalation.

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

deflate as you exhale.

(a) A and B only

(b) C and D only

(c) A and C only

(d) B and D only

1. Which of the following statements are true/false?

(i) The blood transports CO2 comparatively easily because of its higher solubility.

(ii) Approximately 8 -9%of CO2 is transported being dissolved in the plasma of blood.

(iii) The carbon dioxide produced by the tissues, diffuses passively into the blood stream and passes into red blood corpuscles and reacts with water to form H2CO3

(iv) The oxyhaemoglobin (HbO2) of the erythrocytes is basic.

(v) The chloride ions diffuse from plasma into the erythrocytes to maintain ionic balance.

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

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

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

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

1. Mark the correct statement.

(a) Volume of residual air is higher than tidal volume.

(b) Volume of complementary air is higher than tidal volume.

(c) Volume of supplementary air is lower than residual capacity.

(d) All of these

1. Which of the following statement correctly defines Bohr effect?

(a) Rise in p50 with a decrease in CO2 conc.

(b) Rise in p50 with decrease in pH

(c) Rise in p50 with increase in O2

(d) Fall in p50 with decrease in pH

1. In the following statements:

(i) Carbonic anhydrase is present in the erythrocytes.

(ii) In erythrocytes the carbon dioxide combines with water and is transported.

(a) Statement (i) is correct and is responsible for statement (ii).

(b) Statement (i) is not correct but statement (ii) is correct.

(c) Both statement (i) and (ii) are wrong.

(d) Statement (i) is correct but not involved in statement (ii).

1. Mark the correct statement.

(a) Tracheal rings are of hyaline cartilage.

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

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

(d) All of these

1. Which one of the following is a possibility for most of us in regard 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 consciously breathe in and breathe out by moving the diaphragm alone, without moving the ribs at all

(d) The lungs can be made fully empty by forcefully breathing out all air from them

1. Which is correct?

(a) Respiratory centers are not affected by CO2

(b) In humans vital capacity is just double the expiratory volume

(c) A human lung has 103 alveoli

(d) During inspiration the lungs create suction pump

1. Which two of the following changes (a–d) usually tend to occur in the plain dwellers when they move to high altitudes (3,500 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

Changes occurring are:

(a) (B) and (C)

(b) (C) and (D)

(c) (A) and (D)

(d) (A) and (B)

1. The toxic effect of CO is due to its greater affinity for haemoglobin as compared to O2 approximately by

(a) 2 times

(b) 20 times

(c) 200 times

(d) 1000 times

1. At higher CO2 concentration, oxygen dissociation curve of haemoglobin will

(a) Move to left

(b) Move to right

(c) Become irregular

(d) Move upwardly

1. Which one of the following mammalian cells is not capable of metabolising glucose to carbondioxide aerobically?

(a) Unstriated muscle cells

(b) Liver cells

(c) Red blood cells

(d) White blood cells

1. What is the cause for the movement of oxygen through the alveolar blood capillaries of lungs?

(a) Difference in the O2 tension and partial pressure of these chambers

(b) Partial pressure of CO2

(c) Union of O2with haemoglobin

(d) All of the above

1. Which is false?

(a) Blood from Right side of heart is carried to lungs by pulmonary artery

(b) Pleura is double covering of kidney

(c) Pancreas is both exocrine and endocrine gland

(d) Scurvy is due to vitamin C deficiency

1. The breathing controlling centre of medulla oblongata is mainly under

(a) Chemical control

(b) Physical control

(c) Neural control

(d) All of the above

1. During inspiration, the diaphragm

(a) Expands

(b) Shows no change

(c) Contracts and flattens

(d) Relaxes to become dome-shaped

1. Percentage of oxygen supplied by haemoglobin is

(a) 97%

(b) 100%

(c) 49%

(d) 3%

1. When CO2 concentration in blood increases, breathing becomes

(a) Shallower and slow

(b) There is no effect on breathing

(c) Slow and deep

(d) Faster and deeper

1. Although much CO2 is carried in blood, yet blood does not become acidic, because

(a) It is absorbed by the leucocytes

(b) Blood buffers play an important role in CO2 transport.

(c) It combines with water to form H2CO3 which is neutralized by NaCO3

(d) It is continuously diffused through tissues and is not allowed to accumulate

1. The disease that occurs when the haemoglobin content of the blood goes down is

(a) Pleurisy

(b) Emphysema

(c) Anemia

(d) Pneumonia

1. The quantity 1500 ml in the respiratory volumes of a normal human adult refers to

(a) Maximum air that can be breathed in and breathed out

(b) Residual volume

(c) Expiratory reserve volume

(d) Total lung capacity

1. Trachea & bronchi possess

(a) Incomplete cartilaginous rings

(b) Complete cartilaginous rings

(c) Thick muscular walls

(d) Thick fibrous walls

1. The function of nasal cavity& nasopharynx is to

(a) Warm the inspired air

(b) Moisten the inspired air

(c) Filter out the dust particles from the inspired air

(d) All of the above

1. Which is a common passage in swallowing food and breathing?

(a) Larynx

(b) Gullet

(c) Glottis

(d) Pharynx

1. The structure which prevents the entry of food into respiratory tract is

(a) Pharynx

(b) Larynx

(c) Glottis

(d) Epiglottis

1. Skin is an accessory organ of respiration in

(a) Human

(b) Frog

(c) Rabbit

(d) Lizard

1. Cellular respiration depends primarily upon the

(a) Availability of carbohydrates in cells

(b) Concentration of O2 in atmosphere

(c) Presence of nitrogen with O2 in air

(d) Transport of O2 to the cells

1. The exchange of gases in the alveoli of the lungs takes place by

(a) Simple diffusion

(b) Osmosis

(c) Active transport

(d) Passive transport

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| Question  nos | Answers | Question  nos | Answers |
| 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15. | b  a  c  a  d  b  a  a  b  d  a  c  b  c  a | 16.  17.  18.  19.  20.  21.  22.  23.  24.  25.  26.  27.  28.  29.  30. | b  a  c  a  d  b  c  b  a  d  d  d  b  d  a |