BIOLOGY

BOOKS - NCERT BIOLOGY (ENGLISH)

BREATHING AND EXCHANGE OF GASES

Mcq

1. Respiration in insects Is called direct because

A. the cells 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

Answer: a

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2. Which of the following does not occur during breathing?

A. Brings the air to body temperature

B. Warms up the air

C. Diffusion of gases

D. Cleans up the air

Answer: c

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3. A person suffer punctures in his chest cavity in an accident without any damages 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

Answer: d

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4. It is known that exposure to carbon monoxide is harmful to animals because

A. it reduces C_O transport

B. it reduces O_2 transport

C. it increases C_2 transport

D. it increases O_2 transport

Answer: b

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

A. inspiration is a passive process whereas expiration is active

B. inspiration is a active process whereas expiration is passive

C. inspiration and expiration are active processes

D. inspiration and expiration are passive processes

Answer: b

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

A. tetai lung capacity

B. tidal volume

C. Vital capacity

D. inspiratory capacity

Answer: c

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7. Mark the incorrect statement in context to O_2 binding to Hb

A. lower pH

B. lower temperature

C. lower pCO_2

D. higher pO_2

Answer: d

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8. Mark the correct pair of muscles involved in the normal breathing in humans.

A. Extemal and internal intercostal muscies

B. Diaphragm and abdominal muscles

C. Diaphragm and external intercostal muscles

D. Diaphragm and intercostal muscles

Answer: d

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9. Incidence of Emphysema - a respiratory disorder is high in cigarette smokers. In such cases

A. the bronchioles are found damaged

B. the alveolar walls are found damaged

C. the plasma membrane is found damaged

D. the respiratory muscles are found damaged

Answer: b

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10. 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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11. CO_2 dissocated from carbamino haemoglobin when

A. pCO_2 is high and pO_2 Is low

B. pO_2 is high and pCO_2 IS low

C. pCO_2 and pO_2 are equal

D. None of the above

Answer: b

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12. In breathing movements, air volume can be estimated by

A. stethoscope

B. hygrometer

C. Sphygmomanometer

D. Spirometer

Answer: d

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13. 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) Correct, (iii) incorrect, (iv) Correct

D. (i) Correct, (ii) Incorrect, (iii) Correct, (iv) Incorrect

Answer: b

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14. 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

Answer: a

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15. Match the following and mark the correct options

Animal	Repiratory organ
Earthworm	(i). Moist cuticle
Aquatic Arthropods	(ii). Gills
Fishes	(iii). Lungs
Birds/Reptiles	(iv). Trachea

A. 2 1 4 3

B. 1 4 2 3

C. 1 3 2 4

D. 1 2 4 3

Answer: b

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1. Define the following terms?

(a) Tidalvolume

(b) Residualvolume

(c) Asthma

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2. A fluid filled double membranous layer surrounds the lungs. Name it and mention its important function.

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3. Name the primary site of exchange of gases in our body?

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4. Cigarette smoking causes emphysema. Give reason.

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5. What is the amount of O_2 supplied to tissues through every 100 ml. of oxygenated blood under normal physiological conditions?

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

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7. Arrange the following terms based on their volumes in an asceding order.

(a) Tidal volume (TV)

(b) Residual volumn (RV)

(c) Inspiratory Reserve volumn (IRV)

(d) Expiratory Capacity (EC)

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8. Complete the following sentences by selecting the correct option.

(A) Inspiratory capacity

$(IC) = \underline{\quad (i) \quad} + IRV$

(B) $\underline{\quad (ii) \quad} = TV + IRV + ERV$

(C) Funcational residual capacity

$(FRC) = ERV + \underline{\quad (iii) \quad}$

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9. Name the organs of respiration in the following organisms.

(a) Flatworm ..... (b) Birds .....

(c) Frog ..... (d) Cockroach ..... .

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10. Name the important parts involved in creating a pressure gradient between lungs and the atmosphere during normal respiration.

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1. State the different modes of CO_2 transport in blood.

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2. Compared to O_2 diffusion rate of CO_2 through the diffusion membrane per unit difference in partial pressure is much higher. Explain.

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3. Given below is a list of different steps (i-vi) involved in respiration.

(i) Utilisation of O_2 by the cells for cataolic reactions.

(ii) Transport of gases by the blood.

(iii) Pulmonary ventilation by which atmospheric air is drawn in and CO_2 is released out.

(iv) Release of resultant CO_2.

(v) Diffusion of O_2 and CO_2 between blood and tissues.

(vi) Diffusion of gases (O_2 and CO_2) across

alveolar tissues.

Select an option which has correct sequence of all the steps.

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4. Differentiate between

(a) Insiratory and expiratory reserve volume

(b) Vital capacity and total lung capacity.

(c) Emphysema and occupational respiratory disorder.

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5. Explain the transport of O_2 and CO_2 between alveoli and tissue with diagram.

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6. Explain the mechanism of breathing with neat labelled sketches.

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7. Explain the role of neural system in regulation of respiration.

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