NCERT Solution

Respiration in Organism

Exercise

1. **Why does athlete breathe faster and deeper than usual after finishing the race?**

Answer:
An athlete needs more energy during and after the race. Since demand for the energy is high the breakdown of food must be speeded up. This requires more oxygen to be supplied. This is why an athlete not only breathes fast, but also take deep breathes and thus inhale more oxygen.

2**. List the similarities and differences between aerobic and anaerobic respiration**.
Answer:

Aerobic Respiration	Anaerobic Respiration
It takes place in present of oxygen	It takes place in absent of oxygen
In this process, glucose is completely broken down into carbon dioxide, water along with release of energy. Glucose + Oxygen $\rightarrow$ Carbon dioxide + Energy	In this process, glucose is broken down ethyl alcohol, water and energy. Glucose $\rightarrow$ Ethyl alcohol + CO_2 + Energy
It occurs in all organisms like mammals.	It usually occurs in lower organisms like yeasts and bacteria. It can occur in muscles of higher organism during the heavy activities.

3. Why we often sneeze when we inhale a lot of dust-laden air?

Answer:
The air around us has various types of unwanted suspended particles like- smoke, dust, pollens etc. When we inhale these particles get trapped in the hair present in our nasal cavity. However, sometimes these particles may get past the hair present in our nasal cavity. Then they irritate the lining of the cavity as a result of which we sneeze. Sneezing expels these foreign particles from the inhaled air and a dust-free, clean air enters our body.

5: Tick the correct answer:

A. In cockroaches air enters the body through

i. lungs
ii. gills
iii. spiracles
iv. skin

Answer: iii

B. During heavy exercise, we get cramps in the legs due to the accumulation of

I. carbon dioxide
II. lactic acid
III. alcohol
IV. water

Answer: ii

C. Normal range of breathing rate per minute in an average adult person at rest is

I. 9-12
II. 15-18
III. 21-24
IV. 30-33

Answer: ii

D. During exhalation, the ribs

I. move outwards
II. move downwards
III. move upwards
IV. do not move at all

Answer: ii

6. Match the items in column I with those in column II

Column I	Column II
a. Yeast	**I. Earthworm**
b. Diaphragm	**II. Gills**
c. Skin	**III. Alcohol**
d. Leaves	**IV. Chest cavity**
e. Fish	**V. Stomata**
f. Frog	**VI. Lungs and skin**
g. insects	**VII. Trachea**

Answer:

Column I	Column II
a. Yeast	Alcohol
b. Diaphragm	Chest cavity
c. Skin	Earthworm
d. Leaves	Stomata
e. Fish	Gill
f. Frog	Lungs and skin
g. insects	Trachea

7. Mark 'T' if the statement is true and 'F' if it is false:
(i) During heavy exercise the breathing rate of a person slows down. (T/F)
(ii) Plants carry out photosynthesis only during the day and respiration only at night. (T/F)
(iii) Frogs breathe through their skins as well as their lungs. (T/F)
(iv) The fishes have lungs for respiration. (T/F)
(v) The size of the chest cavity increases during inhalation. (T/F)

Answer:
(i) During heavy exercise the breathing rate of a person slows down. (F)
(ii) Plants carry out photosynthesis only during the day and respiration only at night. (F)
(iii) Frogs breathe through their skins as well as their lungs. (T)
(iv) The fishes have lungs for respiration. (F)
(v) The size of the chest cavity increases during inhalation. (T)

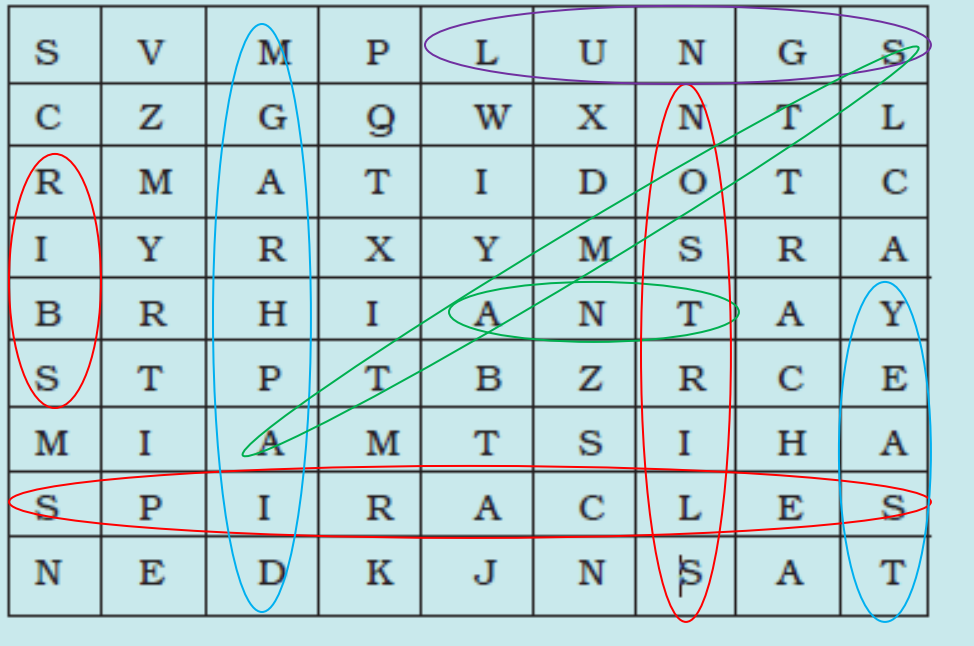
9. Given below is a square of letters in which are hidden different words related to respiration in organisms. These words may be present in any direction—upwards, downwards, or along the diagonals. Find the words for your respiratory system. Clues about those words are given below the square.

S	V	M	P	L	U	N	G	S
C	Z	G	Q	W	X	N	T	L
R	M	A	T	I	D	O	T	C
I	Y	R	X	Y	M	S	R	A
B	R	H	I	A	N	T	A	Y
S	T	P	T	B	Z	R	C	E
M	I	A	M	T	S	I	H	A
S	P	I	R	A	C	L	E	S
N	E	D	K	J	N	S	A	T

(i) The air tubes of insects
(ii) Skeletal structures surrounding chest cavity
(iii) Muscular floor of chest cavity
(iv) Tiny pores on the surface of leaf
(v) Small openings on the sides of the body of an insect
(vi) The respiratory organs of human beings
(vii) The openings through which we inhale
(viii) An anaerobic organism
(ix) An organism with tracheal system

Answer:

I. Trachea
II. Ribs
III. Diaphragm
IV. Stomata
V. Spiracles
VI. Lungs
VII. Nostrils
VIII. Yeast
IX. Ant



S	V	M	P	L	U	N	G	S
C	Z	G	Q	W	X	N	T	L
R	M	A	T	I	D	O	T	C
I	Y	R	X	Y	M	S	R	A
B	R	H	I	A	N	T	A	Y
S	T	P	T	B	Z	R	C	E
M	I	A	M	T	S	I	H	A
S	P	I	R	A	C	L	E	S
N	E	D	K	J	N	S	A	T

10.The mountaineers carry oxygen with them because:
(a) At an altitude of more than 5 km there is no air.
(b) The amount of air available to a person is less than that available on the ground.
(c) The temperature of air is higher than that on the ground.
(d) The pressure of air is higher than that on the ground.

Answer: (b)

The mountaineers carry oxygen with them because the amount of air available to a person is less than that available on the ground.