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(Bihar). Notes for Bsc part
3rd, paper V.

Question :- Write notes on PHYSIOLOGY
OF RESPIRATION ?

Answer :- The external process of
respiration involves the
transfer of oxygen (O_2) and
carbon dioxide (CO_2) that
occurs in the lungs
between the atmosphere and
the pulmonary circulation. The
internal process of respiration
is the similar process
that occurs at the cellular
level.

Respiration (physiology) :-

In
physiology, respiration is the
movement of oxygen from
the outside environment to
the cells within tissues.

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and the transport of carbon dioxide in the opposite direction.

The physiological definition of respiration differs from the biochemical definition which refers to a metabolic process by which an organism obtains energy (in the form of ATP and NADPH) by oxidising nutrients and releasing waste products. Although physiologic respiration is necessary to sustain cellular respiration and thus life in animals, the processes are distinct: cellular respiration takes place in individual cells of the organism while physiologic respiration concerns the diffusion and transport of metabolites between the organism and the external environment.

In animals with lungs, physiological

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Respiration involves respiratory cycles of inhaled and exhaled breaths. Inhalation (cycles of) (breathing in) is usually an active movement. The contraction of the diaphragm muscle cause a pressure variation, which is equal to the pressures caused by elastic, resistive and inertial components of the respiratory system. In contrast, exhalation (breathing out) is usually a passive process. Breathing in brings air into the lungs where the process of gas exchange takes place between the air in the alveoli and the blood in the pulmonary capillaries.

The process of breathing does not fill the alveoli with atmospheric air during each inhalation (about 350 ml per breath), but the

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inhaled air is carefully diluted and thoroughly mixed with a large volume of gas about 2.5 liters in adult humans) known as the functional residual capacity which remains in the lungs after each exhalation, and whose gaseous composition differs markedly from that of the ambient air. Physiological respiration involves the mechanisms that ensure that the composition of the functional residual capacity is kept constant, and equilibrated with the gases dissolved in the pulmonary capillary blood, and thus throughout the body. Thus, in precise usage, the words breathing and ventilation are hyponyms, not synonyms, of respiration; but this prescription is not consistently followed even (though) by most health care providers because the term respiratory ratio (RR) is a well

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- established team in health care, even though it would need to be consistently replaced with ventilation note if the precise usage were to be followed.

Classifications of respiration:

There are several ways to classify the physiology of respiration:

By species :-

- Aquatic respiration
- Buccal pumping
- Animal respiration
- Human respiration

By mechanism :-

- Breathing
- Gas exchange
- Arterial blood gas
- Control of respiration
- Apnea

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By other medical topics :-

- Respiratory therapy
- Breathing gases
- Hyperbaric oxygen therapy
- Hypoxia
- Gas embolism
- Decompression sickness
- Barotrauma
- Oxygen toxicity
- Nitrogen narcosis
- Carbon dioxide poisoning
- Carbon monoxide poisoning
- HPNS

see also :-

- Diffusing capacity
- outline of Biology - Hierarchical outline list of articles related to biology
- Respiratory sounds
- Respiratory monitoring