Respiratory System

1. **What is Respiration?**
   Ans. Respiration is a fundamental and Vital Process in living organisms that releases energy from the food.

2. **What happen with the Respiration Process?**
   Ans. During the process of respiration
   a) We exchange gases with environment by breathing in and out the air.
   b) The air taken in contains oxygen which combine with the sugars present in the food.
   c) Oxygen breaks down sugar into simple substance.
   d) During the process energy Is released which is used for the various functions and life process.

3. **What is called Oxidations?**
   Ans. The reaction of Sugars with Oxygen is called Oxidations.

4. **What is the main process of Respiration?**
   Ans. Respiration in living organisms consists of two main processes-
   a. Breathing or External Respiration
   b. Cellular or internal Respiration

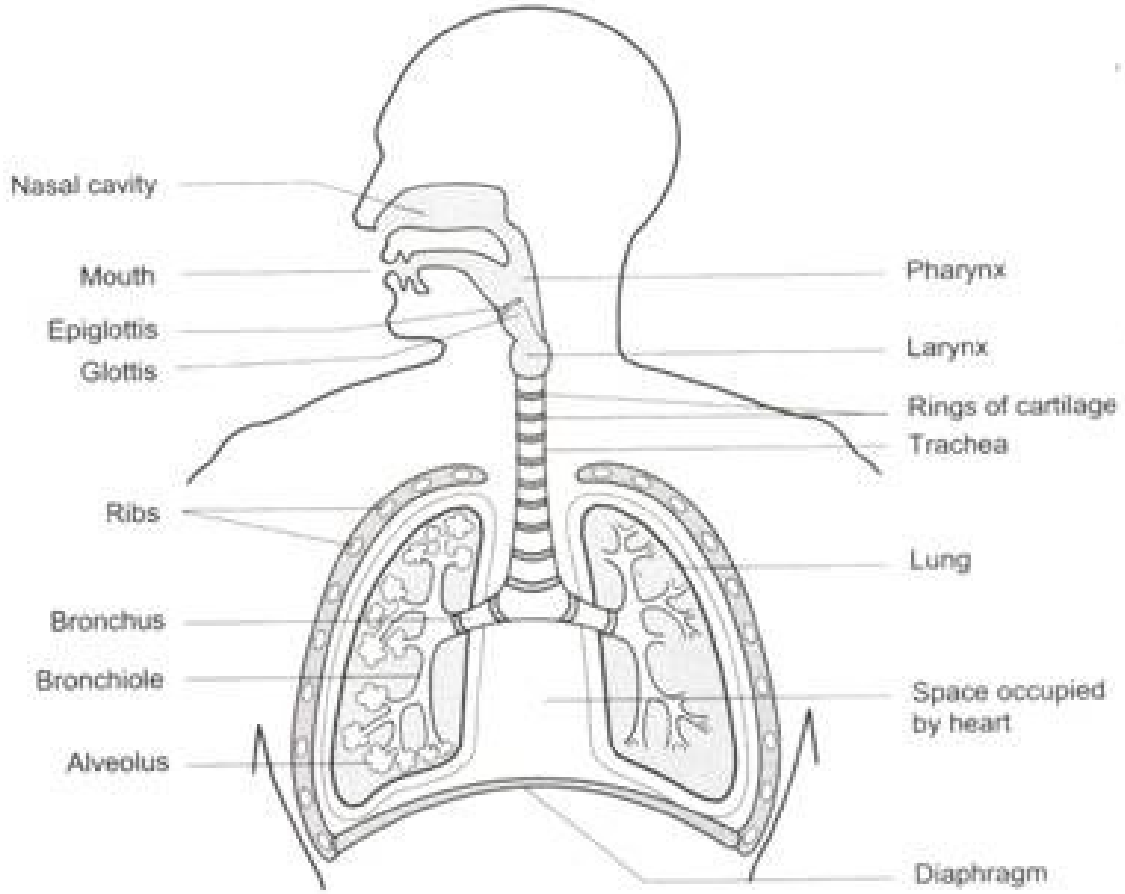
5. **What is Breathing?**
   Ans. Breathing is a process of gaseous exchange with the surrounding. During this process we take in air rich in oxygen from the surrounding environment and in return we give out air rich in Carbon di Oxide back to the environment.

6. **What is Cellular Respiration?**
   Ans. In this process the oxygen reaches each cell with the help of blood.
   This oxygen breakdown the sugar present in the food and energy is released which is stored in the form of Adenosine triphosphate (ATP) molecules.
   As the process takes place in every cell it is termed as internal respiration or Cellular Respiration.

7. **Write the differences between Breathing and Cellular Respiration**
Ans.

Breathing	Cellular Respiration
Definition	
Breathing involves the process of inhaling oxygen and exhaling carbon dioxide	Cellular respiration is the process of breaking down of glucose to produce energy, which is then used by cells to carry out the cellular function.
Process Occurrence	
Breathing takes place in the lungs. Also involves the nose, mouth and pharynx	Respiration takes place in cells
Type of Process	
Breathing is voluntary as well as an involuntary physical process. (For example, breathing during sleep is involuntary. Voluntary breathing is observed when we sing, speak, swim or for relaxation techniques)	Respiration is an involuntary chemical process.
Production of Energy	
There is no production of energy in this process.	Energy is produced and released in the form of ATP.
Cellular Activity	
As it occurs outside cells, it is called the extracellular process. (Occurs between the organism and the external environment)	As it occurs inside cells, it is called the intracellular process.
Enzyme used	
No enzymes are used during the process.	A large number of enzymes are used during the process.
Associated Organs	
Breathing occurs through respiratory organs, including the nose, lungs, etc.	Respiration takes place in cells and cell organelles, including mitochondria, etc.

8. **Draw a line Diagram of Human Respiratory System?**
   Ans.



Human respiratory system

9. **Which parts of human body are involved in respiratory system of Human beings?**
   Ans. The following parts are involved the respiratory system.
   They are:
   a) External Nostrils.
   b) Nasal Cavity
   c) Trachea
   d) Lungs
   e) Ribs and Diaphragm

10. **What are External Nostrils?**
    Ans. These are the external openings through which air is drawn into the nasal passage.

11. **What is Nasal Cavity?**
    Ans. The cavity present in the nasal passage which is separated from the oral cavity by a bony palate is called Nasal Cavity.

12. **How hair and mucus in Nasal Cavity helps breathing?**
    Ans. Hair and Mucus help to trap foreign particles, such as dust, pollen grains, germs etc. and help to breath the clean air.

13. **How temperature of the air becomes the same as our body temperature?**
    Ans. Blood circulation in the nasal cavity helps in warming or cooling the air taken in. as a result, the temperature of the air becomes the same as our body temperature.

14. **What is Trachea?**
    Ans. Our nasal cavity end in the internal nostrils, through this air enters the pharynx. The pharynx leads into a windpipe is called Trachea.
    Trachea is supported by rings of cartilage which prevent the collapse of trachea.

15. **What are Lungs?**
    Ans. The lungs are a pair of spongy, air-filled organs located on either side of the chest. The trachea conducts inhaled air into the lungs through its tubular branches, called bronchi. The bronchi then divide into smaller and smaller branches called bronchioles.

16. **How Lungs look like?**
    Ans. Lungs look like pink spongy structure. The lung is pink because they contain many tiny blood vessels filled with blood. Due to full of air space the lungs are spongey.

17. **What are Bronchi?**
    Ans. The trachea divides into two smaller tubes, called Bronchi. Each bronchus enters the lungs of its side and branches into smaller tubes.

18. **What are bronchioles?**
    Ans. After entering the lungs each bronchus divides into smaller tubes, known as Bronchioles. The bronchioles end in tiny air sacs composed of alveoli. An air sac gives the appearance of a brunch of grapes.

19. **Why do we Sneeze?**
    Ans. When any foreign particle or a cold blast of air irritates the mucus membrane of our nasal cavity, we sneeze to remove these irritants from the nose.

20. **What are Ribs and Diaphragm?**
    Ans. The lungs are surrounded and protected by bonny structure are called Ribs.
    A large Dome shaped muscle which forms the floor of the chest are called Diaphragm. It separates the chest cavity from the abdomen.

21. **What is Inhalation?**
    Ans. It is the process through which we can take air from external environment into body.

22. **What is Exhalation?**
    Ans. Exhalation is the process through which we breath out the air from the body.

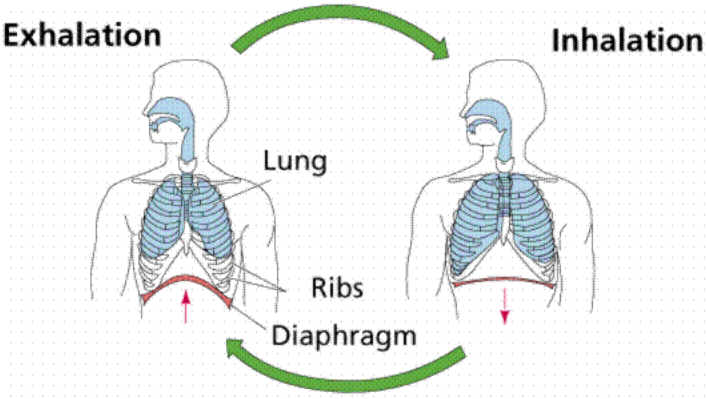
23. What are the differences between Inhalation and Exhalation?

Ans.

Changes in the body	Inhalation	Exhalation
Volume of thoracic cavity	Increases	Decreases
Movement of Ribs	Upward and outwards	Downward and Inwards
Movement of Diaphragm	Contracts and moves downwards	Expand and move upwards
Movement of Air	Rushes in	Rushes Out

24. How can we breathe in air?

Ans. We breathing the air from the surrounding through Inhalation process. During this process when the diaphragm moves downwards the ribs move upward and outward direction, and the size of chest cavity increases. As a result, lungs also expand and increase in size. And we breath in the air from the environment.



25. How can we breathe out air?

Ans. We breath out the air through Exhalation process. During this process when diaphragm moves upward ribs move in downwards and inward. Due to the movement of ribs and diaphragm the size of the chest cavity decreases and the lungs contract and its size decreases. As a result, we breath out the air.

26. What is the amount of gases in the composition of Inhaled Air?

Ans. In Inhaled Air the composition of gases is:

a. Oxygen – 21 %
b. Nitrogen – 78%
c. Carbon Di Oxide – 0.04%
d. Water Vapours- less %

27. **What is the amount of gases in the composition of Exhausted air?**

Ans. The composition of gases in Exhausted air is:

a. Oxygen – 16 %
b. Nitrogen – 78%
c. Carbon Di Oxide – 4%
d. Water Vapours- more %

28. What is called Breathing Rate?

Ans. The number of times a person breath in and out in a minute is termed as breathing rate.

The breathing rate of human in rest condition is 15 to 18 times in a minute and in heavy exercise is 25 times in a minute.

29. **Why breathing rate is increased at the time of exercise?**
    Ans. During physical Exercise we need more energy. The increased rate of breathing being more oxygen in the body releasing more energy.

30. **What is Respiratory Disorder?**
    Ans. Respiratory disorders or diseases are diseases of lungs and human airways that affect human respiration.
    Some common Respiratory Disorders are
    Asthma
    Bronchitis
    Pneumonia
    Tuberculosis

31. **What are the causes of Asthma and what are the symptoms?**
    Ans. It is a common respiratory disorder due to inflammation of bronchi and bronchioles of the respiratory system.
    The symptoms are difficulty in breathing, wheezing, and cough. Etc.

32. **What is the cause behind Bronchitis?**
    Ans. Bronchitis is caused due to the inflammation of Bronchi

33. **What are the symptoms of Bronchitis?**
    Ans. Its symptoms are Chough, wheezing, shortness of breath and discomfort in chest.

34. **What is the cause behind Pneumonia?**
    Ans. Pneumonia is caused due to the inflammation of lung alveoli.

35. **What are the symptoms of Pneumonia?**
    Ans. The symptoms are cough, chest pain, Fever, and difficulty in breathing.

36. **What is the cause behind Tuberculosis?**
    Ans. It is a bacterial disease caused by *Mycobacterium tuberculosis*.

37. **What are the symptoms of Tuberculosis?**
    Ans. The common symptoms of Tuberculosis are chronic cough, fever, night sweats and weight loss.
    In severe condition patient have blood containing sputum.

Short Question

1. _____ breaks down sugar into simple substance in respiratory system.
2. The reaction of Sugars with Oxygen is called _____.
3. Full form of ATP is _____.
4. In _____ Respiration the oxygen reaches each cell with the help of blood.
5. The process of gaseous exchange with the surrounding is called _____.
6. Lungs are attached to the _____.
7. The trachea divides into two smaller tubes, called _____.
8. The lungs of human body look like _____ structure.
9. Lungs are spongey due to _____.
10. Due to presence of many tiny blood vessels lungs are look like _____.
11. The bronchioles end in tiny air sacs called _____
12. Due to present of _____ trachea prevent collapse.
13. The cavity present in the nasal passage is called _____.
14. Nasal Cavity is separated from the oral cavity by _____.
15. _____ in the nasal cavity helps to breath continuously.
16. Due to present of _____ in Nasal cavity air become moist.
17. _____ part of Nasal Cavity trap foreign particles.
18. Air is drawn into the nasal passage through _____.
19. The lungs are surrounded and protected by bonny structure are called _____.
20. The floor of the chest formed by _____.
21. the process through which we can take air from external environment into body is called _____
22. Through _____ process we breath out the air from the body.
23. Diaphragm Contracts and moves downwards in _____ process.
24. Volume of thoracic cavity decreases through _____ process.
25. The % of Nitrogen in Inhaled and Exhausted air are _____.
26. The % of Oxygen in Inhaled and Exhausted air are _____, _____.
27. _____ gas does not absorb in Inhaled and Exhausted Process.
28. In inhaled process _____ gas is absorbed by blood.
29. In Exhausted Process _____ gas comes from blood the Lungs.
30. The number of times a person breath in and out in a minute is called _____.
31. The breathing rate of human in rest condition is _____ in a minute.
32. The breathing rate of human IN heavy exercise is _____ in a minute
33. Tuberculosis is due to _____.
34. _____ is caused due to the inflammation of lung alveoli
35. Bronchitis is caused due to the inflammation of _____.
36. _____ disease is due to inflammation of bronchi and bronchioles of the respiratory system.

1) Oxygen
2) Oxidations.
3) Adenosine triphosphate
4) Cellular.
5) Breathing.
6) Trachea or the windpipe.
7) Bronchi.
8) Pink spongy
9) full of air space
10) Pink
11) Alveoli
12) rings of cartilage
13) Nasal Cavity
14) a bony palate
15) bony palate
16) mucus
17) Hair and Mucus
18) External Nostrils
19) Ribs.
20) Diaphragm.
21) Inhalation
22) Exhalation
23) Inhalation
24) Exhalation
25) 78%
26) .21% , 16%
27) Nitrogen
28) Oxygen
29) Carbon Di Oxide
30) Breathing rate.
31) 15-18
32) 25
33) *Mycobacterium tuberculosis*.
34) Pneumonia
35) Bronchi
36) Asthma.