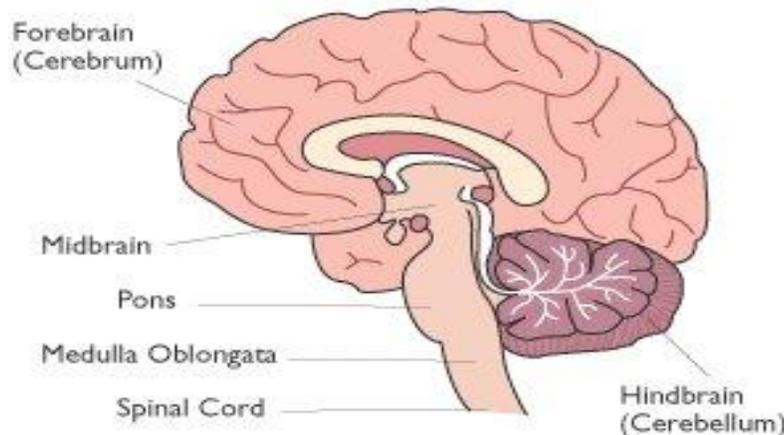


**Ques:1** what is the function of the medulla oblongata organ.

**Answer:**



The medulla oblongata is a structure found in the brains of vertebrate animals, including humans. This structure controls a number of autonomic functions, including respiration and blood pressure, making it a very critical part of the brain. Damage to the medulla oblongata can be fatal, as the patient will be unable to breathe, swallow, or perform other basic motor functions without assistance. This structure is also believed to be the key to how general anesthesia works, as the anesthetics depress the medulla oblongata so that it cannot function as it normally would.

This region of the brain is located at the bottom of the brainstem, the structure which connects the brain and spinal cord. The medulla oblongata sits directly on top of the spinal cord, below the area of the brainstem known as the pons. In cross section, this region can be seen as a small bulge in the brain stem which is designed to accommodate a number of important nerves.

In addition to regulating breathing and blood pressure, the medulla oblongata is also involved with cardiac function, various bodily secretions, swallowing, and reflexes. The functions regulated by the medulla oblongata take place at all hours of the day without any need for input from the rest of the brain. The medulla oblongata is also involved

in the response to certain stimuli, creating reflexive responses which are designed to keep the body functioning. The ability to respond automatically to certain stimuli is critical to survival, as is the independent regulation of necessary functions like breathing and swallowing.

People who experience brain damage can still have functioning bodies, as long as the medulla oblongata is working. Damage to the medulla oblongata can result in the need for a ventilator or other supportive equipment to keep the body working. Depending on the nature of the damage, it may be possible to recover, or the patient may be considered to be brain dead or in a persistent vegetative state from which there is no possibility of recovery. When life support is withdrawn, the body will cease to function.

A variety of drugs and medications can cause changes in the function of the medulla oblongata, which can sometimes result in physical states which resemble death. Opiates and alcohol can both cause dysfunction until the body is able to express these substances, and in cases of overdose, it is possible to die because this area of the brain is not able to function normally. Sedatives can cause similar effects, as can hypothermia and coma.

## **Functions**

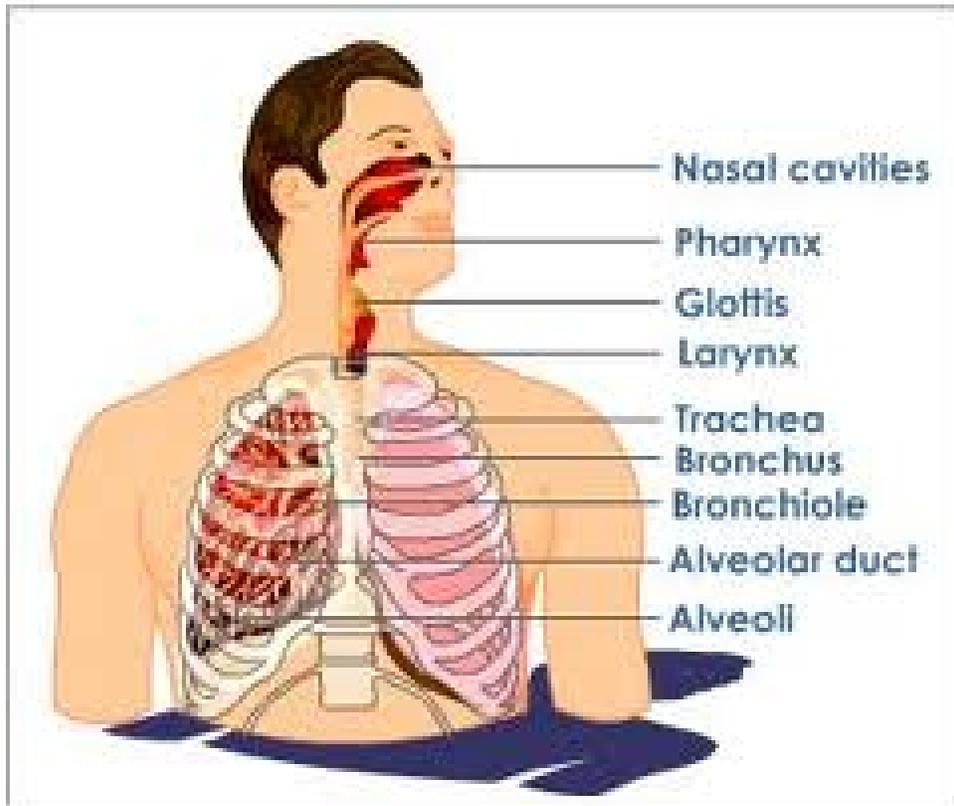
The medulla oblongata controls autonomic functions, and relays nerve signals between the brain and spinal cord. It is also responsible for controlling several major points and autonomic functions of the body:

- \* respiration (via dorsal respiratory group and ventral respiratory group)
- \* blood pressure
- \* swallowing
- \* vomiting
- \* defecation
- \* reflexes

**Ques 2 Explain about external respiration.**

**Answer:-**

### **External Respiration**



The processes of breathing or "**respiration**" are often described in two parts: External Respiration and Internal Respiration.

This page is about **external respiration**, which is the processes by which external air is drawn into the body in order to supply the lungs with oxygen, and (used) air is expelled from the lungs in order to remove carbon dioxide from to body.

#### **Summary of Processes:**

<b>Inspiration (= inhalation)</b>	<b>Concentration of Gases</b>			<b>Expiration (= exhalation)</b>
<ol style="list-style-type: none"> <li>1. Intercostal muscles contract.</li> <li>2. Sternum moves upwards and outwards.</li> <li>3. Ribs move upwards and outwards.</li> <li>4. Diaphragm flattens.</li> <li>5. Increase in volume of thoracic cavity.</li> <li>6. Pressure in thoracic cavity decreases.</li> <li>7. Air is drawn into thoracic cavity.</li> </ol>	<b>Inspiration</b>  <b>21%</b> <b>0.04%</b> <b>78%</b> <b>0.96%</b> <b>various</b>	<b>Oxygen</b> <b>Carbon Dioxide</b> <b>Nitrogen</b> <b>Inert Gases</b> <b>Water Vapour</b>	<b>Expiration</b>  <b>17%</b> <b>4.04%</b> <b>78%</b> <b>0.96%</b> <b>various</b>	<ol style="list-style-type: none"> <li>1. Intercostal muscles relax.</li> <li>2. Sternum moves downwards and inwards.</li> <li>3. Ribs move downwards and inwards.</li> <li>4. Diaphragm relaxes - forming a bell-shape.</li> <li>5. Volume in thoracic cavity decreases.</li> <li>6. Pressure in thoracic cavity increases.</li> <li>7. Air is expelled from thoracic cavity.</li> </ol>

**Terminology:**

In order to describe how a person's respiratory system is (or could be) functioning some special terms are used to refer to the quantities of gas that pass in and out of the structures used for external respiration.

**Minute Volume** is the amount of air drawn into the lungs during one minute while the person is at rest.

(Typically due to around 12-16 breaths/minute, so approx. 6-8 litres/minute.)

**Residual Volume** is the air that remains in the lungs after expiration.  
(Typically approx. 0.35 litres.)

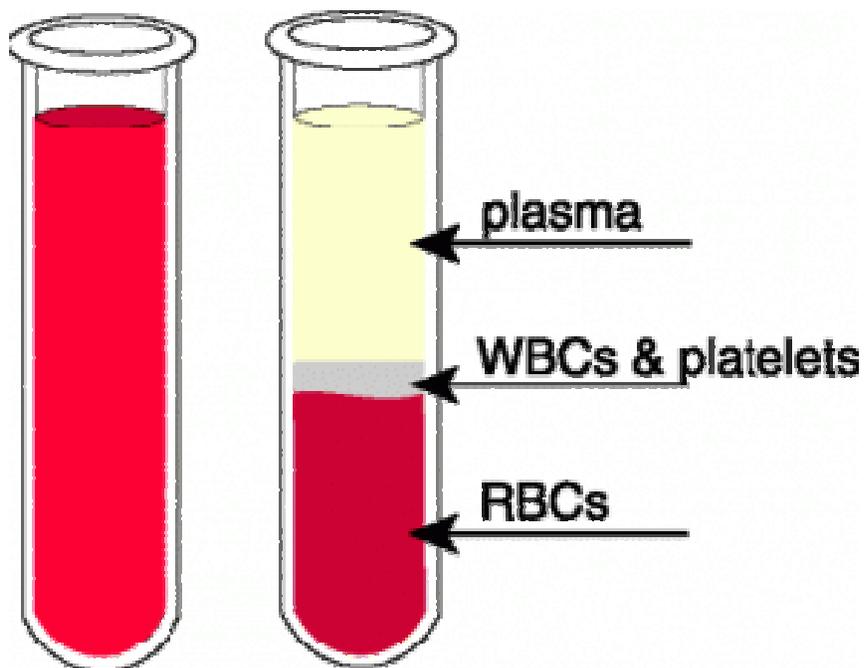
**Tidal Volume** is the amount of air taken into the lungs during one breath when the person is at rest.  
(Typically approx. 0.5 litres.)

**Vital Capacity** is the maximum volume of inspired breath, following maximum expiration.  
(Typically approx. 3.5 - 4.5 litres.)

### Ques-3 What is the function of Plasma protein?

Ans:

Plasma is present in the blood and constitutes the liquid part of the blood. It is made up of 90% water which is required for hydration of body tissues. 7% of plasma is composed of proteins and looks like a pale yellow liquid. Blood plasma is made up of approximately 20% of extracellular body fluid and the composition is almost similar to interstitial fluid. The major difference between the two fluids is the presence of protein content. Interstitial fluid comprise of only 2% of protein because the **plasma protein** molecules are way too large and hence cannot penetrate through the capillary walls located in the interstitial area. And when protein does leak in small volume, the lymph takes it up and returns it back to the blood.



## functions of plasma protein

**The functions of plasma proteins include:**

- Osmotic or intravascular effect of **plasma protein** maintains fluid as well as electrolyte balance
- Viscosity of plasma is maintained by the **plasma protein**
- These are the protein reserves of our body
- Performs the important function of clotting
- Responds with inflammation in case of wound or injury
- The gamma globulins act as antibodies and protect our body from infection
- **Plasma protein** also maintains acid base balance

**Ques-5 Write a short note on Balanced Diet.**

**Answer:**

### Balanced Diet

A child should have well balanced diet to prevent him from infections and diseases. A balanced diet has all the nutrients required by a child in correct proportions for a healthy growth. Here is a guide on balanced diet.

#### **What is a balanced diet**

A diet which contains all the nutrients e.g. energy, proteins, fats, vitamins, minerals etc. required by a child for the proper maintenance of health and optimum growth is termed as a 'balanced diet'. Dals and beans have high contents of protein and a small amount of fat. Bread is rich in carbohydrates but poor in proteins.

## **What does the child need in his diet**

It is important that a child's diet should be both good in quality as well as adequate in quantity. If his diet is deficient in nutrients and energy, it can adversely affect his weight gain and body growth. The child's diet should supply him with proteins, carbohydrates, fats, vitamins, minerals and other nutrients in adequate quantities.

## **How do I provide a balanced diet**

Your child would receive a proper balanced diet if he eats a meal consisting of food items like: chapatis, bread, rice, breakfast cereals, maize, potatoes, dals, beans, poultry and meats, milk, cheese etc. It is important to mix various kinds of foods so that his requirements of nutrients would be met. It is important for you to ensure that your child eats food in adequate quantities. Considering a child's small appetite, it is advisable that his food should be rich in nutritive value and that he should eat more often during the course of the day.

## **What is anaemia**

Deficiency of iron in young children causes anaemia. Dark green vegetables and meats are rich in iron. Iron is also found in chapatis, breads, eggs, dals, nuts and beans.

**Ques 5: Write a note on refractive error of eyes.**

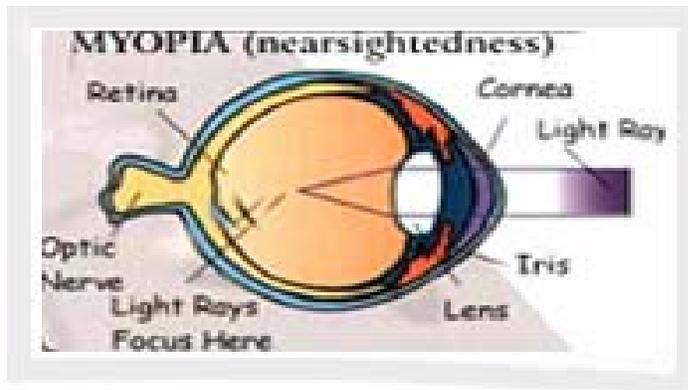
**Answer:**

### **Refractive error**

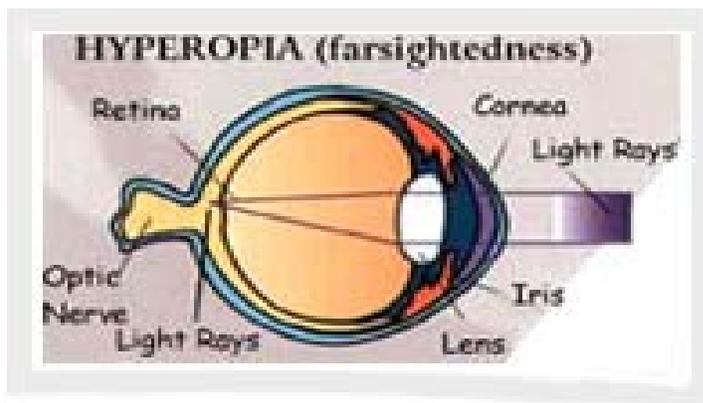
The function of the eye is to see clearly the objects around us. The inability of the eye to accurately focus the rays of light coming from distance on the retina is called refractive error. This condition may be either because the eye is too short or long in length, or because the cornea or lens does not have the required refractive power.

There are three types of refractive errors:

**Myopia (near-sight):** this is the condition in which the eye is too long and the light is focused in front of the retina. Distant objects are blurred but the near objects are seen clearly. The eye has too much optical power and to correct it the optical power is reduced by either minus glasses or contact lenses, or by surgery.



**Hypermetropia (long-sight):** this is the condition in which the eye is too short and the light is focused behind the retina. The eye has less optical power than is needed. When young the eye can use the lens within the eye to compensate, but reading glasses are needed at a relatively early age. Later, distance glasses (plus) are needed as well, such that glasses for distance and near are required.



**Astigmatism:** this is the condition where the eye does not focus the light evenly, usually due to the cornea of the eye being more curved in one direction than the other. It may occur on its own or may be associated with myopia or hypermetropia.

