

**Topic: Blood Composition and Function**

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**Group – B**

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- **Blood plasma:**
- Blood plasma is a mixture of proteins, enzymes, nutrients, wastes, hormones and gases. The specific composition and function of its components are as follows:
- **1. Proteins:**
- **Albumins**
- **Globulins**
- **Fibrinogen**
- These are the most abundant substance in plasma by weight and are an important reserve supply of amino acids for cell nutrition. They play a variety of roles including clotting, defense and transport.

- Macrophages in the liver, gut, spleen, lungs and lymphatic tissue can break down plasma proteins so as to release their amino acids.
- Plasma proteins also serve as carriers for other molecules.
- The plasma proteins interact in specific ways to cause the blood to coagulate, which is part of the body's response to injury to the blood vessels and helps protect against the loss of blood.
- Plasma proteins govern the distribution of water between the blood and tissue fluid by producing what is known as a colloid osmotic pressure.

## **2.Amino acids:**

- These are formed from the breakdown of tissue proteins or from the digestion of digested proteins.

**3.Nitrogenous waste: Being** toxic end products of the breakdown of substances in the body, these are usually cleared from the bloodstream and are excreted by the kidneys at a rate that balances their production.

## **4.Nutrients:**

- Those absorbed by the digestive tract are transported in the blood plasma. These include glucose, amino acids, fats, cholesterol, phospholipids, vitamins and minerals.

**5. Gases:** Some oxygen and carbon dioxide are transported by plasma.

Plasma also contains a substantial amount of dissolved nitrogen.

## **6.: Electrolytes**

- The most abundant of these are sodium ions, which account for more of the blood's osmolarity than any other solute.