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Diploma in Pharmacy 2nd Year
Biochemistry & Clinical Pathology
Important Questions
Chapter 10 : Water and Electrolytes

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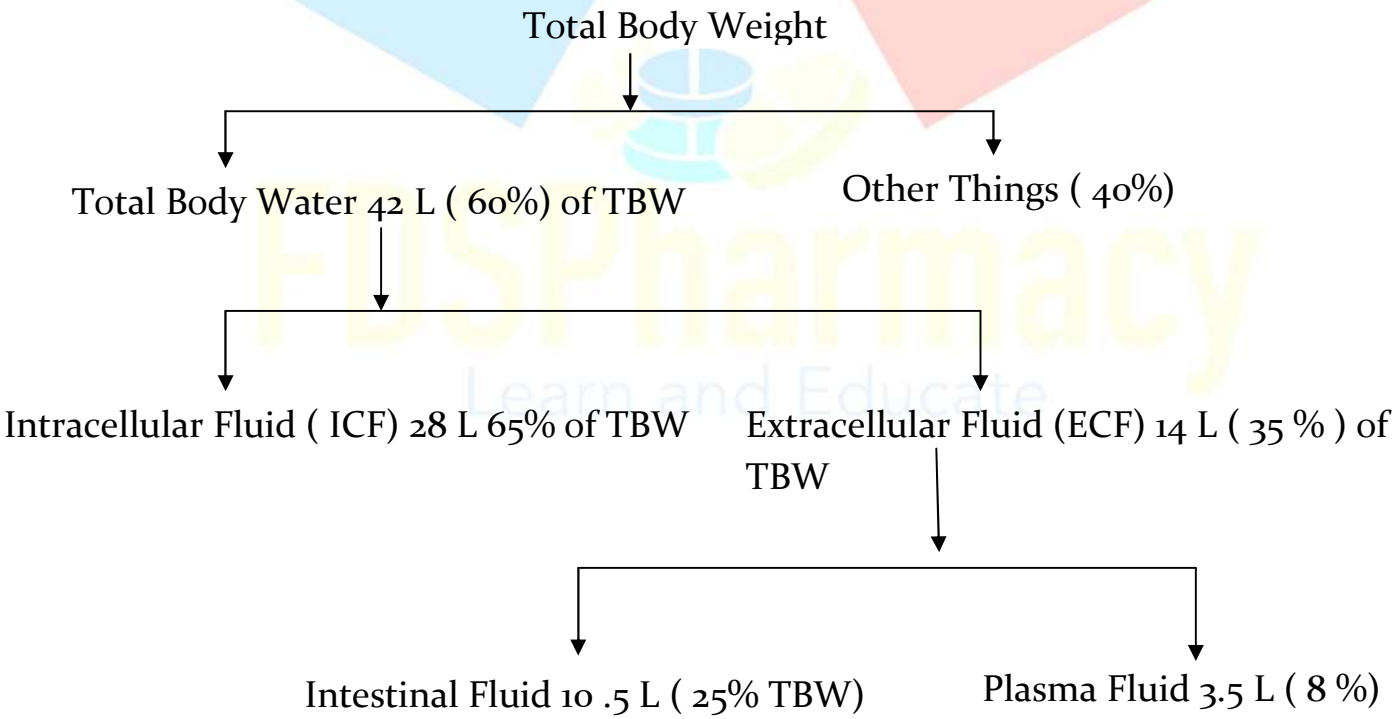
Chapter 10
Water and Electrolytes
IMPORTANT Questions

Q1. Give a short note on water.

Ans.

- → Water is the most important component of the human body.
- → It is necessary for normal function of the body.
- → Chemically water is an inorganic compound , its molecular formula is H_2O.
- → It forms approximately 55-660% mass of an average adult's Body.
- → The total water content decrease in older people due to reduced muscles mass.

Distribution of Water in the Body



Distribution of water in different body organs

- ➢ Brain and heart are composed of 73 % of water
- ➢ Lungs are composed of 83 % of water
- ➢ Skin are composed of 64 % of water
- ➢ Muscles and kidneys are composed of 79 % of water

Q2. Write a function of water in the body.

Ans.

Function of Water in the body

- It maintains body temperature.
- It provides lubrication in joints and protects the bones.
- It makes the blood plasma thin and helps in proper flowing to tissues.
- It helps in excretion of wastes from body.
- It helps in intracellular transportation.
- It prevents dryness of skin.
- It helps in occurrence of many enzymatic reaction.
- It helps in formation of saliva.
- It prevents constipation.
- It helps in maintenance of blood pressure.
- It helps kidney to perform properly.
- It helps in the maintenance of pH of the body.

Q3. Give a short note on Electrolytics.

Ans.

Electrolytics

- Electrolytes are minerals which dissolved in water and release ions.
- They are found in body fluids also like sodium , Chloride , potassium , and maintain osmotic pressure.
- They maintain amount of water in the body , particularly Sodium maintains water balance through Osmosis.

Electrolyte Balance

→ If electrolytes are present in proper amount as body needs it is called electrolyte balance.

Electrolyte Composition of Body Fluids

Cations (mmol/l)	Plasma	Intestine	Intracellular
Na	142	139	14
K	4.2	4.0	140
Ca	1.3	1.2	0
Mg	0.8	0.7	20
Anions (mmol/l)			
Cl	108	108	4.0
HCO_3	24.0	28.3	10
Protein	1.2	0.2	4.0
HPO_4	2.0	2.0	11

Q4. What do you mean by Dehydration and write the cause of Dehydration.

Ans.

Dehydration

→ Dehydration refers to a condition where the body lacks adequate fluids to carry out normal physiological functions. It can occur when the body loses more fluids than it takes in, leading to an imbalance in the body's electrolytes and dehydration.

Causes of Dehydration

- **Inadequate Fluid Intake :** The most common cause of dehydration is not drinking enough fluids. This can occur if a person is not thirsty or if they are unable to access water.
- **Excessive Fluid Loss :** Dehydration can also occur if the body loses too much fluid through sweating, urination, or diarrhea.
- **Medical Conditions :** Certain medical conditions can also cause dehydration, including diabetes, kidney disease, and fever.
- **Medications :** Some medications can cause dehydration as a side effect.

Q5. Write a note on Oral Rehydration Therapy.

Ans.

Oral Rehydration Therapy

→ Oral rehydration therapy (ORT) is a simple and effective way to treat dehydration. It involves drinking a solution of water, salt, and sugar to replace fluids and electrolytes lost due to dehydration.

→ ORT is often used to treat dehydration caused by diarrhea, vomiting, and other illnesses that cause fluid loss.

→ ORT is recommended by the World Health Organization (WHO) as the first-line treatment for dehydration.

→ It can be given at home or in a healthcare setting and is suitable for all age groups.

→ ORT solution can be made by dissolving the following in one liter of clean water:

- 6 level teaspoons of sugar
- 1/2 level teaspoon of salt

→ The solution should be sipped slowly over a period of four to six hours. If vomiting occurs, the solution should be paused for 10 minutes and then restarted. ORT should be continued until the individual is rehydrated, and fluid losses have been replaced