

MID TERM ASSIGNMENT PAPER

Subject: Physiology

Instructor : Dr Sara Naeem

Semester :2nd (Dpt)(Section A)

ID:16286

Note: Answers the following questions

Question No:1

Explain homeostatic mechanism regarding the control of calcium in the body with reference to parathyroid hormone and calcitonin?

Ans: HOMEOSTATIC MACHANISMS:-

The homeostatic machanisms have three interdependencies components for the variable being regulate.

1. Receptor
2. Control center
3. An effector

The receptor is the sensing basic component which monitors are responds to converts in to the internal and external environment.

THE HOMEOSTATIC MACHANISMS IN HUMAN BODY :-

The human body includes that machanisms which help in the body regulates. Includes **glands, tissue, cells, organs.**

The main machanisms of homeostatic are:

- **Blood sugar**
- **Body fluid composition**
- **Body temperature**
- **Blood pressure**

THE BODY CONTROL THE CALCIUM LEVEL:-

- The parathyroid harmone is secreted by parathyroid gland and lie the back side of the thyroid gland.
- The supply of the blood to parathyroid gland from thyroid arteries.
- The chief cells in parathyroid gland are the site of the principal of parathyroid harmone synthesis.

SYNTHESIS OF PARATHYROID HARMONE:-

1. Parathyroid harmone translate as a **pre-pro harmone.**
2. Cleavage of **C-terminal** ends along with biologically inactive peptide.

REGULATION OF PARATHYROID HORMONE :-

1. The secretion of parathyroid hormone respond to the small variations in plasma Ca^{2+} with in seconds.
2. When Ca^{2+} falls, cyclic adenosine monophosphate (**cAMP**) rise and parathyroid hormone secretes.
3. It stimulate **osteoclasts**, which breakdown bone to calcium release into the sternam of the blood.

QUESTION NO:2

Give clinical differentiation between hypothyroidism and hyperthyroidism?

Ans:

CLINICAL DIFFERENCE BETWEEN HYPOTHYROIDISM AND HYPERTHYROIDISM :

HYPERTHYROIDISM:

Hyperthyroidism is the excessive production of thyroid hormone.

It occur when body make too much of the thyroid hormones. Causes of the hyperthyroidism are **toxic goiter,thyrotoxicosis,grave disease**. In hyperthyroidism patients thyroid gland is increased from it's normal size.

HYPOTHYROIDISM:-

Hypothyroidism is the low production of thyroid hormone.

It slow down the metabolism because of slow production of thyroid hormone which can lead to weight gain, as it is opposite of hyperthyroidism.

CLINICAL DIFFERENCES AMONG THEM :

HYPERTHYROIDISM

HYPOTHYROIDISM

☒1	Too much iodine	Not enough iodine
☒2	Grave disease	Hashimotos disease
☒3	Thyroid replacement medication	Anti-thyroid medicines
☒4	Toxic nodular goiter	Pituitary tumor

SYMPTOMS :

HYPERTHYROIDISM:

HYPOTHYROIDISM:

- | | | |
|---|--------------------------|--|
| ❶ | weight loss | weight gain |
| ❷ | Increased sweating | lack of energy |
| ❸ | Goiter (gravis) | possible goiter (hashimoto's) |
| ❹ | Heart beat fast | extremely tired |
| ❺ | Diarrhea | memory loss |
| ❻ | Nervousness | constipation, dryness of skin |
| ❼ | Muscles weakness | joint pain and heart pain |

TREATMENT:

- | | | |
|---|-------------------------|---------------------------|
| ❶ | Anti-thyroid medication | synthetic thyroid hormone |
| ❷ | Beta blockers | |

QUESTION NO :3

Classify enzymes and their function in digestion?

Ans:

Enzymes are classified on the base of their target substrate.

TYPES OF ENZYMES IN DIGESTION:

There are three main types of enzymes in digestion.

- **LIPASES:**Distribute fatty acid off in oil and fats.
- **PROTEASES:**Split the protein into amino acid and small peptides.
- **AMYLASES:** Distribute carbohydrates as sugar and starch and converts in to a simple sugars like glucose.

IMPORTANCE OF ENZYMES IN DIGESTION:

In digestion the enzymes are very important because they act as catalyst for the break down of large molecules because these big molecules cannot pass from the gut wall into the blood. They change into smaller ones because these molecules can easily diffuse into the blood.**Fats, protein, starch** are big molecules, So lipase converts fats into the fatty acid.

Enzymes are produced naturally in the body.

FOR EXAMPLE :-

enzymes are required for proper digestive system function. Digestive enzymes are mostly produced in the pancreas, stomach, and small intestine. But even your salivary glands produce digestive enzymes to start breaking down food molecules while we still chewing. You can also take enzymes in pill form if we having certain digestive problems.

ENZYMES WORK IN DIGESTION SYSTEM:-

- **Amylase** is produced in the salivary glands, pancreas, and small intestine. One type of amylase, called ptyalin, is made in the salivary glands and starts to act on starches while food is still in your mouth. It remains active even after you swallow.
- **Protease** is produced in the stomach, pancreas, and small intestine. Most of the chemical reactions occur in the stomach and small intestine. In the stomach, pepsin is the main digestive enzyme attacking proteins. Several other pancreatic enzymes go to work when protein molecules reach the small intestine.
- **Lipase** is produced in the pancreas and small intestine. A type of lipase is also found in breast milk to help a baby more easily digest fat molecules when nursing. Lipids play many roles, including long-term energy storage and supporting cellular health.